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ABSTRACT

Recognizing the difficult time most youths face in finding a good job after high school graduation, the Austin (Texas) Independent School District developed strategies to improve the transition. A high level of collaborative activity was already underway in Austin between the school district and the community, but most programs had been started without linkage to each other or to the curriculum or instructional practices. Recommendations were made to design a system that would do the following: (1) improve career foundations (enhanced basic skills, thinking skills, personal traits. and career awareness and exploration for all youth; to develop learning and training records and career passports to document and signal career foundations, achievements, and experience); and (2) develop learning and training paths from high school into career opportunities in the workplace. Key principles underlying this strategy are to improve communication between industry and school personnel and to link work opportunities to effort and achievement in school, thereby strengthening incentives for students to learn. A proposal was made to implement the program with one school feeder school system in the district as a model. (Contains 189 references.) (KC)

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IMPLEMENTING SCHOOL-TO-WORK TRANSITION IN AUSTIN, TEXAS

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The University of Texas at Austin
Policy-Research Project Report

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Lyndon B. Johnson School of Public Affairs
Policy Research Project
Number 103

Bridging the Gap: Implementing School-to-Work Transition in Austin, Texas

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Policy Research Project on
Bridging the Gap: Implementing
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1993

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Foreword

The Lyndon B. Johnson School of Public Affairs has established interdisciplinary research on policy problems as the core of its educational program. A major part of this program is the nine-month policy research project, in the course of which two or three faculty members from different disciplines direct the research of ten to twenty graduate students of diverse backgrounds on a policy issue of concern to a government agency. This "client orientation" brings the students face to face with administrators, legislators, and other officials active in the policy process, and demonstrates that research in a policy environment demands special talents. It also illuminates the occasional difficulties of relating research findings to the world of political realities.

This report on designing implementation plans and strategies to improve the transition from school to work in Austin results from a policy research project conducted in 1991-92 with financial support from a variety of Austin area sponsors, including the Greater Austin Chamber of Commerce, the Austin Independent School District, the City of Austin, the Lyndon B. Johnson School of Public Affairs, the Lyndon B. Johnson Foundation, and the Austin Area Research Organization, Inc. (AARO), an organization composed of local chief executive officers (CEOs) and university presidents. Additional financial support was received from Jobs for the Future, Inc., in.Cambridge, Massachusetts, and from the Charles Stewart Mott Foundation in Flint, Michigan.

The curriculum of the LBJ School is intended not only to develop effective public servants, but also to produce research that will enlighten and inform those already engaged in the policy process. The project that resulted in this report has helped to accomplish the first task; it is our hope and expectation that the report itself will contribute to the second.

Finally, it should be noted that neither the LBJ School nor The University of Texas at Austin necessarily endorses the views or findings of this study.

Max Sherman
Dean

Acknowledgements

We acknowledge with appreciation the advice, counsel, and guidance throughout this project of Austin business leaders, City of Austin officials, Austin Independent School District administrative and instructional personnel, Greater Austin Chamber of Commerce representatives, and other Austin community leaders.

Individuals who contributed generously their time and ideas to the project included David Hill, Bonnie Lesley, and Margaret Lindsey of the Austin Independent School District; Mary Dodd of the Austin Area Research Organization, Inc.; Sandy Dochen, Carol Wright, and (in fall 1991) Clare Hudspeth of the Greater Austin Chamber of Commerce; Alicia Perez of the City of Austin; Ed Hanslik of Arthur Anderson & Co.; Andy Elliott of NationsBank; Sam Zigrossi of IBM; Joe Higgs and Steve Jackobs of Austin Interfaith; and Tom Viola, an independent consultant. We thank the numerous individuals from other cities and states who responded to our requests for information. In this regard, Gary Standridge and Sally Hampton of the Fort Worth Independent School District staff deserve special mention. We also thank John Bishop, George Elford, Sonia Hernandez, Robert Ivry, Ron Selawach, and Alan Weisberg for sharing their expertise with the project. Their knowledge has helped substantially to inform our efforts, although we remain responsible for errors of interpretation or omission.

We especially thank Mel Waxler of the Austin law firm Wright and Greenhill, P.C., who chaired the Greater Austin Chamber of Commerce's School-to-Work Transition Committee during the time of this project (1991-92). His vision inspired this project, his initiative helped to fund it, and his ideas and questions challenged and guided us throughout the year.

Finally, we express our deep appreciation to Rosemary Foster for her patience and her production assistance in making this report possible.

Executive Summary

The Context: Overview of the Problem

America may have the least effective approach to school-to-work transition of any industrialized nation in the world. Put simply, it has few systematic processes to assist high school graduates to move smoothly from school to work. Secondary school teachers and counselors are primarily geared to encourage youths to enter college, even though almost one-half of each high school graduating class directly enters the labor market without enrolling in college and only one-fourth of each graduating class ultimately obtains a baccalaureate degree.

At the same time, America's preferred employers -- those who offer good wages, attractive benefits, and career potential -- ordinarily do not hire high school graduates immediately after graduation. They prefer to wait until the youths have accumulated some work experience and are "mature and settled down" in their middle to late twenties. In fact, most American employers in a position to pick and choose among applicants select *against* youth. Further, American employers tend to value a high school diploma more as a mark of persistence rather than achievement, and most do not request or use high school transcripts in their hiring decisions.

The lack of a systematic bridge between school and work most adversely affects low-income and minority students, who have few resources or information networks to obtain mainstream jobs. The results are reflected in high rates of unemployment for minority youth. The realization that few minority youths obtain any job -- let alone a good job -- even if they study hard and obtain a diploma provides little incentive to excel in school. However, problems in making the transition from school to work are not confined to minorities and the poor. Negotiating the labor market is a difficult task for many American youths who have decided not to pursue a baccalaureate degree, and even many who are college bound do not have an adequate knowledge of available careers.

Improving the workforce preparation and the transition to work for youths who do not go to college have become central topics in the national policy discussion of the American economy. They form a primary focus for President Clinton's administration, which has promised support for apprenticeships and other measures. In addition, several legislative proposals in the U.S. Congress have been made to improve the school-to-work transition. Experimental programs to improve connections between school and work are underway in several states and localities across the nation. Especially notable are the teacher internships, student worksite visits, and other activities conducted through Project C^3 in Fort Worth and the long-range approaches being taken to improve school-to-work transition in Rochester, New York. Many of the most promising efforts are reviewed in this report. Austin can learn much from the activities already underway in other places. In view of the increasing attention given to school-to-work transition nationally and in Texas, Austin's decision to take action in this area is timely.

A School-To-Work Transition Strategy for Austin

The gap between school and work is as real a problem for youths in Austin as it is in other American communities. More than 9 percent of Austin's high school students drop out each year. Many of those who remain in school see little connection between what they are learning and the jobs they may have in the future. Both students and schools often are unclear about the skills Austin employers currently require. Complicating the picture further, most major Austin employers do not often hire recent high school graduates, in part because they have large numbers of college-trained job applicants from which to choose.

Bridging the gap between school and work requires a coordinated community-wide strategy. Fortunately, many Austin groups are interested in school-to-work issues and have taken action. In spring 1991, the Greater Austin Chamber of Commerce established a School-to-Work Committee to provide oversight and support to two new programs being implemented. The Gettin' Down to Business program provides at-risk students in middle school a job-shadowing experience to help acquaint them with available occupational possibilities to encourage them to stay in school through the difficult transition to high school. The second, a pilot program called High Expectations begun in fall 1991, seeks to place graduating students who have met academic and attendance requirements in career-track jobs with local businesses. Likewise, the City of Austin has made at-risk youth one of its highest priorities. The city began a pilot program to provide training in vocational skills and work habits for 15 high-risk youths with the aim of moving them into permanent, full-time positions in the city. The city also organized a campaign to provide summer employment to at least 1,000 youths. Several mentor programs have been established, with participation by numerous Austin business people through Project Mentor of the Austin Adopt-A-School Program and through other groups, including St. Edward's University, Neighborhood Longhorns, the Big Brothers/Big Sisters Program, and Project M.A.N., Inc. The IBM Corporation adopted the Austin school district as its partner under the national Business Roundtable initiative. This partnership has evolved into the A+ Coalition, a community-wide alliance that submitted to the New American Schools Corporation in 1992 a "Break the Mold" schools proposal incorporating innovative approaches to school-to-work transition. The Austin Adopt-A-School Program, initiated by the Chamber of Commerce in 1983, had more than 1,500 business-school partnerships throughout the Austin Independent School District (AISD) during the 1991-92 school year. The Austin Project, begun by Professors Walt and Elspeth Rostow, has developed a comprehensive plan for investment in Austin's youth, including improvements in school-to-work transition. The AISD is rethinking its academic and vocational education efforts and is seeking new ways to collaborate with the business community to teach both academic and applied skills more effectively. In addition, a variety of resources are available in Austin to assist students with career development and exploration, including the State Occupational Information Coordinating Committee (SOICC) and the Adult Career Exploration Services (ACES) at Austin Community College.

The level of collaborative activity underway in Austin demonstrates significant community interest in Austin's schools. However, almost all programs have been established on an *ad hoc* basis, without linkage or reinforcement. Most are not integrated with changes in instructional practices or curriculum, nor do they provide support and training for teachers to implement needed changes in the schools. The problems and challenges that school-to-work transition presents for Austin are so great that they will not be addressed satisfactorily through good intentions and piecemeal efforts. Austin needs a practical strategy and an integrated plan for school-to-work transition that is systematically developed, adopted by the community, and implemented in a timely manner.

Simply put, a system for effective school-to-work transition in Austin should be designed to achieve three essential objectives: *improving career foundations* (enhanced basic skills, thinking skills, personal traits, and career awareness and exploration) for all youth; *developing learning and training records* and career passports to document and signal career foundations, achievements, and experience; and *developing learning and training paths* from high school into career opportunities in the workplace. Key principles underlying this strategy are to improve communication between industry and school personnel -- especially teachers -- and to link work opportunities to effort and achievement in school, thereby strengthening incentives for students to learn.

Improving Career Foundations

To improve the full spectrum of career foundations in students will require that schools change *what* is taught as well as *how* it is taught. Learning must become more collaborative than individualistic. Application and theory must be united to facilitate learning. Even in the earliest grades, it is critical that real-world applications be included in curricula so that children understand the connection between their school courses and daily life and work. Learning must become task-oriented rather than grade-oriented, and children must take a more active role in their learning. The development of skills not traditionally taught in school calls for new forms of assessment (which in turn can motivate changes in instructional practices).

Teachers must be at the core of developing these new instructional practices and assessments. Ultimately teachers must become the agents of change. To be effective, teachers must understand the needs of modern workplaces. Through a proposed Teacher Internships with Employers (TIE) Program, teachers can become directly familiar with workplace needs and with employers. TIE internships should be directed at teams of teachers from the same schools to increase the potential for meaningful change in AISD classrooms. Motorola's summer teacher internship program and the teacher internships offered at Seton and Brackenridge hospitals during summer 1992 have proven the value of teacher internships in Austin.

Our recommended strategy is to change teaching fundamentally by integrating applied learning with academics throughout the K-12 continuum and by creating in each classroom an environment in which students and teachers can learn together. To reinforce this approach, we recommend not only weaving together existing community efforts -- including the MegaSkills program for parent training (supplemented with a classroom instruction component), Gettin' Down to Business, High Expectations, and mentoring -- but also adding several new elements. These new initiatives should include a required course in career exploration at the middle school level with heavy emphasis on industry participation and use of a career planning approach such as the Career Options Jr. Student Planner used in Wisconsin. In addition, Austin should implement its own version of the Texas Scholars Program, an effort to encourage eighth graders to select core courses in high school and recognize them for achievement in these courses throughout high school. At the high school level, initiatives should include academies in partnership with industry and the development of clear and direct paths into the workplace, especially through tech prep and apprenticeships. The important consideration is to reinforce the development of foundation skills (i.e., enhanced basic skills, thinking skills, personal qualities, and competencies) and career awareness in students throughout their school years, with a series of interventions focused on critical points. At the same time, it must be clearly understood that these program initiatives do not lessen the need to continue to restructure classrooms.

Learning and Training Records

In addition to developing stronger foundation skills among AISD students, the Austin community must find better ways to assess and certify such skills, especially the personal qualities and thinking skills that are not measured or reported in a conventional high school transcript. We need to begin a wider dialogue between business and schools about the strengths and inadequacies of student records now available. Such a discussion could begin through the Austin Human Resource Management Association with a presenter from the school district explaining school transcripts, TAAS test results, and other available assessments of student performance. "User friendly" methods to fill the gaps and overcome identified shortcomings of school records could be pursued in subsequent dialogue between business and school personnel assigned the task. Fortunately, there is a growing body of experience with this issue to draw upon.

Employers' communications with schools regarding the skill requirements of their workplaces must be a *continuing process* rather than a one-time effort. These communications must be dynamic and frequent because many workplaces are changing rapidly and will continue to change. The Austin challenge is to devise and implement simple *formal* processes that are not burdensome and that will lead to significant *informal* interchange between industry and teachers in schools. One obvious task is to engage industry in a dialogue about what information regarding skill levels ought to be included as part of learning and training records. Another is to find ways to provide information to schools and teachers about the performance of recent high school graduates in the workplace. Monitoring and reporting the experiences of the graduates placed through the High Expectations program may offer a convenient way to accomplish this task in the short run.

Learning and Training Paths

Developing learning and training paths (LTPs) from high school into career-track jobs is the third key element of a system for school-to-work transition. High school students must know that effort and achievement in school pays off clearly, directly, and immediately in terms of job opportunities available. Evidence is clear that enhanced basic skills, achievements, and educational attainment pay off in terms of lifetime earnings. However, short-term incentives that matter to students must complement the long-term rewards. To this end, it is essential that high school graduates who have achieved in school and demonstrated the requisite foundation have access to jobs.

Whatever form the paths to the workplace take, the manner of transition from school to employment must be clear to students and to their parents. They must know that, given certain commitments and achievements, certain rewards and outcomes will follow. The development and dissemination of valid information on the efficacy of postsecondary training options is critical not only as a built-in evaluation to provide feedback on the effectiveness of various elements of the system but to provide objective information to students (and to their counselors and parents) who are faced with making a decision regarding which path to choose.

Getting Started: An Action Plan

A key premise of our school-to-work transition strategy for Austin is that the proposed changes must be taken together, because they are mutually dependent and reinforcing. Implementing only one recommendation districtwide is likely to have little long-term benefit. Secondly, since there clearly are not enough public and private resources in Austin to initiate all the changes districtwide, the full range of recommendations should be implemented within *one* AISD feeder system -- much like the strategy taken in Austin's America 2000 proposal (A+ Coalition Design Team, 1992). (A feeder system consists of one high school, plus the middle schools and elementary schools that feed into it.) Demonstrating the system within a single feeder system should lessen the resources problem while providing a suitable medium in which to pilot the initiative. A special campaign should be conducted to encourage the school principals within the targeted feeder system to work with their existing Adopt-A-School partners and to solicit new Adopt-A-School partners who have a special interest in school-to-work transition. The Adopt-A-School Program can be a great resource to provide assistance with career exploration, teacher internships, and work-based learning for students.

The latter half of the 1992-93 school year should be devoted to selecting the initial feeder system, planning the demonstration, organizing the appropriate committees, securing funding, and preparing AISD teachers and staff. Austin ISD should choose a pilot feeder system in which staff are receptive and in which parts of the school-to-work initiative, such as the High Expectations program, are already in place. As many elements as possible of the school-to-work transition initiative should be operational within this one AISD feeder system by the 1993-94 school year. The rate at which the initiative is replicated in other AISD feeder systems will depend on the availability of resources and the care and planning taken to ensure its spread.

AISD cannot improve school-to-work transition on its own, however. The development of a quality workforce requires the active participation of many Austin citizens and organizations, including parents, students, postsecondary institutions, public officials, churches and synagogues, community groups, and especially private and public employers. What Austin needs is a systemic effort that matches the scale of the problem it faces and that reaches the majority of the students who do not go to college. This report seeks to provide a framework for such an effort, including the key elements of its effective implementation.

PART I.

THE CONTEXT

Chapter 1. Introduction

Improving school-to-work transition for youth is integral both to effective educational reform and to the development of a quality workforce. Communities and their business leaders must develop programs and pathways for high school students that integrate quality learning experiences and work opportunities. This approach should not foreclose either subsequent workplace advancement or college-level studies; it also should recognize and reward effort and achievement in high school so that students have incentives to work hard and to learn.

The gap between school and work is as real a problem for youths in Austin as it is in other Texas communities. More than 9 percent of Austin's high school students drop out each year. Many of those who remain in school see little connection between what they are learning and the jobs they may have in the future. Both students and schools often are unclear about the skills Austin employers currently require.

Bridging the gap between school and work requires a coordinated community-wide strategy. Fortunately, many Austin groups are interested in school-to-work issues and have taken action. In spring 1991, the Greater Austin Chamber of Commerce established a School-to-Work Transition Committee. Earlier, it also began a program entitled Gettin' Down to Business to provide at-risk students in three Austin middle schools a job-shadowing experience and to help acquaint them with available occupational possibilities. In fall 1991, the Chamber of Commerce, with the encouragement and support of the Austin Area Research Organization, Inc. (AARO) and other community leaders, began a new pilot program called High Expectations that seeks to place graduating students from four Austin high schools who have met academic and attendance requirements in career-track jobs with local businesses. It was initiated as a result of the Shechem Compact, an agreement between Austin Interfaith, the Austin business community, and local universities and colleges. In 1991 the City of Austin made at-risk youth one of its highest priorities. During summer 1992, The Austin Project developed a comprehensive plan for investing in Austin's youth that includes improvements in school-to-work transition. Several mentor programs have been established, with participation by numerous Austin business people and other groups, including St. Edward's University and the Big Brothers/Big Sisters Program. The Austin Adopt-A-School Program, initiated by the Chamber of Commerce in 1983, had more than 1,500 business-school partnerships during the 1991-92 school year. The A+ Coalition founded by IBM and the Austin Independent School District (AISD) has several initiatives underway to improve schooling. The AISD also is rethinking its academic and vocational education efforts and is seeking new ways to collaborate with the business community to teach both academic and applied skills more effectively.

At the same time, state-level school-to-work transition initiatives are directly related to and reinforce Austin's activities. These include an *ad hoc* state agency planning group on workforce development composed of representatives of the Texas Department of Commerce (TDOC), the Texas Education Agency (TEA), the Texas Employment Commission (TEC), and the Texas Higher Education Coordinating Board (THECB), working in collaboration with the Governor's Office. Three of these agencies -- TEA, TDOC, and THECB -- have established the Quality Workforce Planning System and are implementing a statewide "tech prep" approach to school-to-work transition. Quality Work Force Planning Committees have been established in each of the state's 24 planning regions, including the Capitol Area Workforce Alliance in the Austin area, to promote school-work partnerships and to establish and maintain inventories of education programs and economic development services.

Clearly, then, there is much evidence of school-to-work transition concern and action in Austin. School-to-work initiatives have strong support from both public and private leaders in the city and are characterized by excellent working relationships among staff at the operational as well as the line levels. Such educator-employer collaboration is a key strength of Austin and an important reason for the city's success to date.

Yet the challenges and problems that school-to-work transition presents for Austin are so great that they will not be addressed satisfactorily through good intentions and piecemeal efforts. Austin needs a practical strategy and an integrated plan for school-to-work transition that is systematically developed, adopted by the community, and implemented in a timely manner.

This report focuses on three primary objectives:

1. develop career foundations -- enhanced basic skills, thinking skills, personal qualities, and career awareness and exploration -- for all AISD youth (grades K-12);

2. develop learning and training records and career passports to signal achievement and experience and to enhance career and college opportunities for AISD high school youth (grades 7-12 and beyond); and

3. develop learning and training paths to enhance career opportunities for AISD high school youth (grades 7-12 and beyond).

The three objectives fit together as a whole. While enhancing the K-12 curriculum is an essential component of preparing young people for the workplace, it is not the only needed component. Students must have a more effective way to communicate their K-12 achievements to employers, and they must have learning and training paths available to enable them to pursue jobs that require training beyond high school. Certainly if K-12 preparation is inadequate, then credentialling that inadequacy is not effective. Similarly, there is little reason to create learning and training paths if high school graduates do not possess the educational qualifications and personal traits needed for them to benefit from advanced training. Therefore, improving K-12 education is a necessary prerequisite to other efforts to improve school-to-work transition.

At the outset, we reaffirm that education is more than preparation for work. It is preparation for life in all its aspects -- as citizens, parents, consumers, and patrons of the arts and humanities. In this report, we emphasize the knowledge, thinking skills, and personal qualities to achieve economic success, but these same skills and qualities are required for decisionmaking and success in other aspects of life. We are mindful that there is much more to life than making a living, although as Ray Marshall has well stated:

> . . . you won't have much of a life if you can't make a living. [In our society] most adults identify themselves, organize their lives, gain their sense of self-worth, and contribute to the human community by what they do for a living (Marshall, 1992, p. 1).

This report is divided into two parts. Part I discusses the context for school-to-work transition in Austin, drawing on international comparisons (chapter 2), national developments, and the experience in promising initiatives in other states and localities (chapter 3). Chapter 4 profiles relevant developments at the state level in Texas, while chapter 5 describes existing activities in Austin.

Building on the background provided in part I and on the three primary objectives stated above, part II develops a strategy for school-to-work transition in Austin. Chapter 6 deals with the development of foundation skills and career awareness. Chapter 7 investigates and proposes new approaches to credentialling skills and personal traits. Chapter 8 explores the development of learning and training paths into electronics manufacturing as an example of what is needed in several industries. Chapter 9 brings all three objectives together and proposes initial steps to implement the strategy.

Chapter 2. American School-to-Work Transition in an International Context

American Workforce Preparation

American human resource development practices compare unfavorably with those of competing industrialized nations. America is generally underinvesting in the health, welfare, and education of its children from the prenatal period through adolescence. There are abundant indicators of such underinvestment and its results. America ranked 19th among nations in infant mortality rates in 1985 (Children's Defense Fund, 1988, p. xv). America has the highest rates of child poverty in the industrialized world -- twice the rates of most other nations. America ranked 14th among 16 industrialized nations in the level of spending on K-12 education in 1985 (Rasell and Mishel, 1990, p. 2).

Likewise, America invests less than other nations in the training and retraining of adult workers, particularly in the training of front-line workers. Only 8 percent of front-line workers are likely to have on-the-job training (Commission on Skills of the American Workforce, 1990, p. 49). Of the $30 billion estimated by the American Society for Training and Development to be spent by American employers on formal training, 90 percent is spent by only one-half of 1 percent of all American employers, and two-thirds of company training dollars go to the college educated (Commission on Skills of the American Workforce, 1990, p. 49). Likewise, our public sector investments in training and retraining of workers lag behind those of most other nations. In 1991, the United States spent 0.85 percent of its Gross Domestic Product on public sector labor market programs, compared with 2.7 percent in France, 2.7 percent in Germany, and 1.9 percent in the United Kingdom (OECD, 1992).

One of the most striking contrasts between America and other nations can be found in the workforce preparation of youths who do not go to college. Almost half of each high school graduating class -- roughly 1.4 million young people each year -- directly enter the labor market without enrolling in college, and only one quarter of each graduating class ultimately obtains a baccalaureate degree. The William T. Grant Foundation Commission on Work, Family and Citizenship called youth who do not go to college the "forgotten half." Yet the jobs these workers perform are critical to our national well-being. As the commission noted, they are "the young people who build our homes, drive our buses, fix our televisions, maintain and serve our offices, schools and hospitals, and keep the production lines of our mills and factories moving. To a great extent, they determine how well the American family, economy, and democracy function" (William T. Grant Foundation Commission on Work, Family and Citizenship, 1988, p. 1). These jobs compose the majority of employment in our economy; by the year 2000, moreover, fully 70 percent of all jobs will not require a college baccalaureate degree (Commission on Skills of the American Workforce, 1990, p. 26). Yet many of these jobs will require significant learning beyond high school.

America may have the least effective approach to school-to-work transition of any industrialized nation (Commission on Skills of the American Workforce, 1990, pp. 57-65). Put simply, it has no systematic processes to assist high school graduates to move smoothly from school into work. Secondary schools and counseling efforts are geared primarily to encourage youths to enter college. Most high school graduates not going to college are left on their own, without advice or career counseling and without job placement assistance. A 1981 survey by the Educational Testing Service (ETS) revealed that almost half of all high school students never talked to a counselor about occupations and only 6 percent of high school counselors reported spending more than 30 percent of the time helping students find jobs (Chapman and Katz, 1981). Budget cuts during the 1980s eliminated federally funded job counseling, job testing, and placement services available to high school seniors through the public Job Service, which at its peak in 1963 had served 600,000 youths in half of the nation's high schools (Barton, 1991, p. 50).

The lack of a systematic bridge between school and work most adversely affects poor and minority students. They have access to few resources or information networks to obtain mainstream jobs. In labor markets, word-of-mouth contacts among people who know and trust each other match learners with learning opportunities and jobs with jobseekers. Many middle-class parents have the contacts and resources to be good job developers for their children. However, low-income parents are not so well positioned, especially if they are African American or Hispanic. The problems often are compounded by powerful negative stereotypes youths and employers may have about one another. Employers often are influenced by what they see in the media about inner-city youths. Likewise, many minority youths have negative ideas about industry hiring practices. In addition, the location of available jobs may pose significant problems for inner-city youths who have no access to transportation to the available employment or training opportunities (Ihlanfeldt, 1992).

The results are reflected in statistics on employment and unemployment among youths. According to 1990 data, only 29 percent of African American high school dropouts between the ages of 16 and 24 are working at any job, compared with 57 percent for white dropouts. Among youths of the same age with a high school diploma, 55 percent of African Americans are working, compared with 79 percent of whites. The realization that relatively few minority youths will obtain any job -- much less a good job -- even if they study hard and obtain a diploma provides little incentive to excel in school. More disturbing is that employment problems may persist. Analyzing data from the National Longitudinal Survey of Youth, Paul Osterman has concluded:

> Roughly one-third of all high school graduates, and somewhat more high school dropouts, fail to find stable employment by the time they are thirty. . . . For this group the rather casual American system does not work well (1992, p. 12).

The Commission on Skills of the American Workforce summarized the problems for youths going to work after high school:

> There is no curriculum to meet the needs of non-college bound youth, no real employment service for those who go right to work, few guidance services for them, no certification of their accomplishments and . . . no rewards in the workplace for hard work at school (1990, p. 47).

America is not serving many of her youths well and is particularly neglectful of the needs of the three-quarters of her future workforce who do not pursue baccalaureate degrees. Yet this portion of the workforce is becoming a more important key to competing effectively in the global economy.

America's economic preeminence during the first two-thirds of this century was due to abundant natural resources, economies of scale created by a large internal market with little external competition, and supportive policies and institutions (Marshall and Tucker, 1992a, p. 2). With a vast market to serve, production was organized into assembly lines using the "scientific management" methods of Frederick Winslow Taylor. According to Taylor and his colleagues, work was to be analyzed by engineers through "time and motion" studies and broken into simple tasks that could be quickly and easily learned by workers with relatively little education and repeated throughout the workday with machine-like efficiency. Under "Taylorism," work is designed and controlled by engineers and technicians who attempt to discover the "best way of doing things." Thus front-line workers require little thinking and only a modicum of literacy, which schools (established on the same mass production model) could easily provide. The system is geared to produce long runs of standardized products, based on the assumption that productivity improvement is a function of investment in expensive machines, not in ordinary workers. Production relies on rules, stability, and standardized technology, with less attention to quality and consumer preferences. Large bureaucracies of indirect staff develop to supervise workers, maintain parts inventories, manage relations with suppliers, schedule production, inspect for quality, maintain machinery, and carry out other managerial tasks. In fact, the modern factory organized along traditional Tayloristic lines has as many as ten indirect workers for every direct worker.

Problems with this system arose in the 1970s with the improvements in transportation and communication technology and the development of a global marketplace based on free movement of capital, technology, and trade. Under such conditions, production operations can be located anywhere in the world, including many areas with much lower wage levels than found in the United States. Trying to compete on the basis of wage levels is not a viable strategy for America or other high-wage countries. The unequal income patterns that result would threaten the country's political, social, and economic health.

Other nations have rejected a competitive strategy based on low skills and low wages. Rather, they have taken a high-skill, high-wage approach based on new ways to organize work in "high performance work organizations." High performance work organizations are quality driven, with closer and more cooperative relations with customers and suppliers. High performance organizations use leading edge technology and adjust quickly to changes, in contrast to the mass production systems that seek stability through rules and contractual relationships. They emphasize positive incentives to reward desired outcomes. They rely on lean management structures that improve productivity by decentralizing decisions and responsibilities to front-line workers (Marshall and Tucker, 1992a, p. 3).

Work formerly performed by indirect workers becomes the responsibility of direct line workers. For example, line workers using computers and statistical process control (SPC) techniques can build quality into the production process and "get it right the first time," thereby avoiding expensive reworking. With computers, line workers also can manage parts inventories, even under "just in time" supply systems. However, to use the computers and SPC techniques effectively requires higher skills from front-line workers.

The new high performance work organizations put a premium on the education and training of all workers. The triple demands of efficiency, quality, and flexibility require line workers who possess high levels of basic skills, learn quickly, work well in teams, have good oral communication skills, can think, and can apply their knowledge. In short, the quality of America's front-line workers is the bottom line to our nation's economic future.

In the modern global information economy, few people will obtain a good job that pays well without significant learning beyond high school. Although many will achieve this learning through postsecondary schooling, what America especially needs is the development of lifelong work-based learning that emphasizes integration of academic and applied learning. These new demands will create high expectations for *all* students, college bound or not, and the need for significant improvements in school-to-work transition. In this regard, a closer comparison of American school-to-work transition practices with those of Japan and Germany is especially instructive.

International Practices

Japan

The largest and best Japanese firms, such as Toyota, Mitsubishi, and Sony, actively recruit not only the best university graduates but also the best high school graduates. They aggressively seek out the best high schools and request school staff to recommend students to them (Rosenbaum and Kariya, 1989, pp. 1334-65). This system gives high school students incentives to work hard and perform well in school, and it puts power into the hands of teachers whose recommendations carry significant weight (Rosenbaum, 1990, p. 12). Eighteen-year-old Japanese high school graduates often move into well-developed learning environments in the firms. For example, beginning in 1992, Toyota at its own expense puts every newly hired high school graduate through two years of full-time coursework designed to provide them a solid grounding in digital electronics, mechatronics, and other technical skills before they begin working in production (Marshall and Tucker, 1992b, p. 51). On-the-job learning systems in major Japanese firms are some of the most widely respected in the world. Peer instruction and team learning are especially encouraged. Japanese foremen and other supervisors are evaluated in part by how well they instruct the workers they supervise; teaching is an integral part of their job. Also, most Japanese firms expect their employees to engage in self-development learning on their own, through taking correspondence courses, attending seminars, or taking advantage of other professional development opportunities outside the company. Many circulate lists of recommended course opportunities and reimburse half of the tuition to any employee who passes such a course. Firms maintain records of the efforts and achievements of their employees in self-development learning, and such accomplishments are taken into account in making decisions about promotions.

Germany

In Germany the involvement of firms in the development of the teenage workforce is greater than in Japan. Under the German apprenticeship system, youths as young as age 16 spend four days per week in a nationally devised program of occupational instruction with an employer and one day per week in school. Because apprenticeships involve two learning tracks -- on the job and in school -- the German system is commonly known as the "dual system." Almost all of Germany's biggest and best companies participate and actively recruit the highest achieving youths, placing them into structured training normally lasting for three years. Factories operated by firms such as Siemans, Daimler Benz, Corning, or Ford Motor Company commonly have several groups of apprentices learning in workshops under the supervision of full-time instructors on the company payroll. In the final stages of their training, apprentices often work on the production floor, rotating through a variety of positions to maximize their learning. The best apprentices are kept as regular employees of the firm.

At the end of their training, apprentices take comprehensive examinations, which contain written and practical components and last as long as 14 hours. Examination boards established by local chambers consist of equal numbers of representatives of employers and workers, together with a vocational teacher who can express views but not vote. Reportedly, 90 percent of all who take the final examinations pass.

From 60 to 70 percent of each year's class of school leavers enter the apprenticeship system. Several go on to university training after serving their apprenticeships. In fact, the preferred pathway to careers in banking and insurance is to gain some practical work experience in the industry through serving an apprenticeship, then enter a university. Fully a third of Germany's engineers are former apprentices who then went to a university (Marshall and Tucker, 1992b, p. 46). Further training and certification as *meister* also are available as career paths for the completing apprentice. Although the choice to enter college is gaining prestige and popularity in Germany (in part due to the higher remuneration offered college graduates), on the whole the German dual system of training still offers high status options for students who do not go to college.

The German apprenticeship system is a socialization process as much as it is a training program. Through apprenticeships, the majority of German adolescents at ages 16, 17, and 18 spend most of their week in an adult environment, learning such work-readiness behaviors as coming to work on time or valuing quality in their workmanship.

The history and present support structure for the German dual system is impressive and important. Although the system traces its roots back to the guilds in the middle ages, an industrial code passed in 1869 provided that employers could be compelled to send apprentices to a school. In 1938, attendance in part-time schools became mandatory for all apprentices, making the dual system universal. The Vocational Education Act of 1969 provides the framework for the present German apprenticeship system. It established the Federal Institute for Vocational Training (Bundesinstitut für Berufsbildung, or BIBB), which is responsible for organizing a process to achieve consensus among the "social partners" -- industry, labor, state officials, and federal officials -- about national skill requirements for each of the 375 occupational areas served by apprenticeship. These skill standards, which specify the name of the occupation and duration of training, an occupational profile, an outline of the training, and the examination requirements, are published as national ordinances and must be adhered to by all local "competent bodies" that administer the apprenticeship systems. Such competent bodies include Chambers of Industry and Commerce, Chambers of Handicrafts, Chambers of Professions, and Chambers of Agriculture.

By law, every employer with five or more employees must belong to a chamber and pay dues, the majority of which are used to finance the administration of the local training system. Thus the monies remain in private hands, but the ordinances ensure that public purposes are met in the expenditures.

German employers pay their apprentices a training stipend for the time spent in training with the firm, in interfirm workshops, and at school. The levels of the training stipends are generally below American minimum wage levels, but the training wage increases through the course of the apprenticeship.

The dual system is supported by an excellent career counseling apparatus operated by the public employment service and by schools. In schools, career awareness begins early with *Arbeitlehre*, a formal learning program about industry that is compulsory for all students in all grades except those in gymnasia, secondary schools that prepare university bound students (Marshall and Tucker, 1992b, p. 44). The outcome of all this activity is to prepare youths to be able to make decisions regarding their initial occupational training as adolescents.

American Hiring Practices

The contrast with U.S. practices could hardly be sharper. Whereas Germany and Japan have systematic incentives and high expectations for performance of their adolescents and their expectations are generally fulfilled, America expects little of adolescents and our expectations are equally fulfilled.

America's preferred employers -- those who offer good wages, attractive benefits, and career potential -- ordinarily do not hire high school graduates immediately after graduation. Most of America's biggest and best corporations avoid hiring youths at all. Even member firms of the Business Roundtable, which actively advocate school reform and form partnerships with schools, do not hire teenagers for career-track jobs. Although almost all of these firms eventually employ high school graduates, they normally wait until the job applicants are "mature and settled down" in their mid-20s and have accumulated work experience. American apprenticeship sponsors act like any other American employer in a position to be selective about applicants; they choose *against* youths. The average starting apprentice in the U.S. is in his/her late twenties.

The delay in hiring for career-track jobs results in many youths spending five or six years floundering in jobs that offer opportunities neither for learning nor for advancement (Osterman, 1980; William T. Grant Foundation Commission on Work, Family and Citizenship, 1988, pp. 26-28). More important, these conventional American hiring practices have at least four critical consequences for school-to-work transition (Glover and Marshall, forthcoming 1993):

(1) *The delay in hiring American youths provides German and Japanese youths a 5-to-10-year head start in gaining access to significant occupational skill training.* Japanese and German youths are in substantial industry training by the end of their teen years, whereas Americans have to wait until their mid- to late 20s if they receive career-track training at all.

(2) *The best American corporations are disengaged from the process of instructing and socializing their future workers during their teenage years.* These tasks are left largely to industries such as retail and fast food franchises. While such service work has value in developing work habits and fostering customer relations skills, it often cannot offer significant occupational skill development.

America does not yet have in place the infrastructure to help administer, finance, and support industry training on a generalized basis. This observation is not intended to cast blame on corporations for their hiring practices. It is simply the way business is conducted in the United States. Firms are acting in their own best short-run interests. Since relatively few firms offer or pay for significant training, they naturally try to minimize the risk that their investments in training will walk away. Under these circumstances, if more mature and reliable workers are available, it makes sense to hire them.

(3) *The delay in hiring high school graduates eliminates a natural communication loop for employers to provide clear information to schools about what skills are needed in the workplace.* American employers currently are not communicating what they need very clearly either to schools or to students. Employers must do a better job of identifying the skills they require of job applicants and reach agreement with schools about how to assess and certify those skills. But this effort must be more than a paper process. Surveying employers to find out what skills they say they need is not enough; the effort must be tied to action, especially in hiring decisions. Employers must act to hire youths who have mastered acceptable skill levels, once certified.

In Japan, employers hiring graduates directly out of schools are well aware of the quality of preparation students are receiving and can let school officials know immediately about specific deficiencies in skills found in their graduates.

In the German dual system, employers, worker representatives, and teachers participate together on the boards which administer the final written and performance examinations to apprentices. Such boards provide natural forums for continuous, direct dialogue between teachers and industry representatives regarding the level and nature of the skills being produced through education and training and whether the skills standards meet the requirements of industry.

(4) *Perhaps most important, achievement and effort in school are disconnected from rewards in the labor market, thus undermining student incentives to work hard and achieve in school.* Recent research by John Bishop and James Rosenbaum has demonstrated that effort and achievement in high school are not effectively rewarded for students who do not plan to go to college (Bishop, 1989, pp. 6-10, 42; Rosenbaum, 1989, pp. 193-97; Rosenbaum, 1990, pp. 10-15, 40, 42, and 43). Few employers ask for high school transcripts, and most of those that do cannot obtain them on a timely basis for making hiring decisions. The high school diploma appears to be valued by employers mainly as an indicator of persistence rather than as a measure of achievement.

As studies of returns to education have made clear, educational attainment and the acquisition of basic skills clearly pay off in terms of lifetime earnings. The problem is that although a high school diploma can make a big difference in earnings over the long run, it appears to make little difference in the type of employment and wages offered in initial jobs after high school graduation. Because many youths have a short time horizon, near-term employment prospects offer much more powerful incentives than do abstract arguments about lifetime earnings. What is needed are strategies to get near-term incentives aligned with long-run realities. Because school-to-work transition is integral to promoting student incentives to learn, it is an essential component of school reform.

Lessons From Abroad

Clearly, the United States cannot adopt the German or Japanese approach wholesale, nor should it want to. Each is embedded in a set of cultural practices that will not transfer well to American soil. Each also is imperfect. For example, Germany uses a fairly rigid tracking system in its lower secondary schools that most Americans would find abhorrent because it closes options for youths before they even become teenagers. A better approach is to identify key principles that underlie both approaches and to find appropriate ways to adapt them to practices in the United States.

Although Japan and Germany use quite different approaches to prepare youths for the workforce, the results are quite similar, and the systems have several characteristics in common. *First, under both* *systems, youths know that effort and achievement in school are clearly and unmistakably needed to qualify for high quality training and jobs after high school.* More important, such effort and achievement pay off in labor market rewards directly and immediately.

Second, society has high expectations for the standards that all youth need to master in school. In both Japan and Germany, youths are able to participate effectively in sophisticated on-the-job learning systems because they are required to meet high academic standards for graduation from secondary schools. Almost all our major competitors provide better academic preparation to a higher proportion of their students. The comparisons are especially striking in mathematics. The average Japanese high school student knows more math than American gifted and talented students on average (McKnight et al., 1987). The gap between American mathematical achievement and that of other countries is widest on tests for conceptual understanding and complex, multistep problemsolving. Forty percent of Koreans and from 16 to 24 percent of students in six other populations, but only 9 percent of American students, were able to solve these types of problems in recent tests (Educational Testing Service, 1988, p. 19). Our competitors do not use tracking or ability grouping in early school years. Especially in Asian countries, performance in school is attributed to effort rather than ability.

Third, employers make early connections with youths, hiring them in their teenage years. While Japanese employers wait until students graduate from high school at age 18 or so, German employers apprentice youths as young as 16 years old. Such early hiring helps students to see clear and direct connections between school and work. It also puts adolescents into adult learning environments, providing a natural medium for the development of mentoring arrangements and other positive relationships between adults and youths.

Fourth, the process of preparing adolescents for the workplace is viewed as a joint responsibility of schools and firms. Japanese and German firms make significant investments and commitments to youth training. Moreover, industry is organized to take on this responsibility. At the national level, Germany has a well-developed network of expert committees organized by the National Institute of Vocational Education which develops skills standards through a consensus process. Training by firms is supported and monitored by local chambers, which serve as competent bodies to administer the training and assess and certify the skills of completers. Japan uses quite different approaches but achieves similarly favorable results. Initial training for groups of new employees is often conducted at special facilities away from the production site. Major industrial firms assist smaller firms in their supplier networks by making training and employees available to them.

Fifth, experiential learning systems for youths on the job are well-developed. Firms have invested in a cadre of expert trainers. In addition, investments have been made in designing coherent and sequenced instruction that actively engages learners through learning-by-doing techniques and that integrates academic principles with applications.

Sixth, industry takes major responsibility for assessing and certifying the skills of youths. Assessing and certifying skills keeps industry officials in touch on a continuous basis with the types and levels of skills that youths are acquiring. For example, in Germany, industry representatives participate with at least one teacher on the local examination boards administering final examinations for apprentices. Needed adjustments in skills often can be made through communication among board members.

American employers must therefore do a better job of communicating to schools and students the skills they require of job applicants and employees and then reach agreement with schools and teachers about how to assess and certify those skills. Equally important, employers must act to hire youths with such skills, once certified. Indeed, employers ultimately must bear a significant share of the responsibility for the development of young people -- their future workers. At the same time, governments at all levels must provide the context in which employers, parents, schools, teachers, communities, and public officials build their partnerships to foster this development.

Chapter 3. American Developments in School-to-Work Transition

Numerous promising efforts are underway in the United States to improve the transition from secondary school to the workplace. Programs for strengthening linkages between meaningful work opportunities and the education system are being developed and piloted at the national, state, and local levels. Millions of dollars are being invested to find viable methods of closing the technology and education gap that is jeopardizing America's future. This chapter highlights national, state (excluding Texas), and local (excluding Austin) initiatives to create and strengthen the school-to-work transition systems necessary to ensure U.S. economic competitiveness and personal quality of life.

National Initiatives

In October 1991, Senator Edward Kennedy (D-Massachusetts) and Senator Mark Hatfield (R-Oregon) introduced the "High Skills, Competitive Workforce Act of 1991" (S. 1790) to implement the recommendations of the Commission on Skills of the American Workforce in its report *America's Choice: high skills or low wages!* (1990). Congressmen Richard Gephardt (D-Missouri) and Ralph Regula (R-Ohio) introduced a companion bill in the U.S. House of Representatives (H.R. 3470). Although the bills were slightly different, both proposed

1. performance-based student assessment and occupational standards;
2. creation of school-to-work transition programs, including youth centers, for all students;
3. corporate support for worker training;
4. technical assistance to businesses to move toward high performance work organizations; and
5. development of state and regional training systems.

Several other federal government endeavors also have sought to enhance school-to-work transition through more effective business-education collaboration and workforce skills development. In August 1992, former President Bush announced his New Century Workforce initiative to streamline the maze of federal job training programs. Senators Sam Nunn (D-Georgia), John Breaux (D-Louisiana), and David Pryor (D-Arkansas) introduced "The Youth Apprenticeship Act of 1991" (S. 2059) in November 1991 to establish demonstration projects between secondary and postsecondary education institutions, labor, and employers providing apprenticeship training to students. A new Institute of Youth Apprenticeship would supervise these partnerships. A bill introduced in 1992 by Congressman Dale Kildee (D-Michigan) also sought to ensure the business community's involvement in education; the "Neighborhood Schools Improvement Act" (H.R. 4323) would include business leaders in state and local education reform efforts. Other proposed legislation included "The American Industrial Quality and Training Act of 1991" (H.B. 3507) (Valentine) and the "School-to-Work Transition and Skill Standards Development Act of 1992" (H.B. 5723) (Perkins) (Jobs for the Future, Inc., 1992, pp. 1, 8-10).

Although no final action on these or related school-to-work transition proposals was taken by the 102nd Congress, the topic will be a high priority for the 103rd Congress. President Bill Clinton initiated a youth apprenticeship program in Arkansas and endorsed apprenticeship programs prominently in his campaign for president. In addition, youth apprenticeship was mentioned in at least eight bills introduced in the U.S. House or U.S. Senate during the 102nd Congress. Thus, it is likely that apprenticeships in one form or another will be included in the legislation enacted in 1993.

Promising Initiatives in Other States

Most state school-to-work transition programs are in an early and dynamic phase, growing and changing as new ideas surface and as local, national, and business interest in school-to-work transition increases. States have a unique role in implementing educational change. They have the power to set high expectations and requirements of teachers and students; they can serve as a resource and catalyst for local initiatives and provide incentives for local action.

Four primary approaches to improving current school-to-work transition are being adopted or explored as state initiatives: Jobs for America's Graduates, Inc. (JAG), academy programs, technical preparation (or tech prep) programs, and youth apprenticeship programs.* Many of these programs are being implemented through state legislation. Other actions include the creation of state task forces and interdepartmental collaboration groups to plan career-related programs and consolidate state resources; required youth community service to give students experience and create a more supportive community atmosphere; and multistate pilot projects to assess the effectiveness of alternative approaches to skills development and career training. Examples of these and other initiatives are described in this section.

Jobs for America's Graduates, Inc. (JAG)

The initial Jobs for America's Graduates program was designed and piloted by public sector and private sector leaders in Delaware under Governor Peter duPont in 1979. Its focus was to reduce dropout rates and facilitate the transition from secondary school to the workplace. Once the model proved successful in Delaware, a national nonprofit organization, Jobs for America's Graduates, Inc. (JAG), was formed to promote and publicize this approach nationwide and to assess its effectiveness. Each state administers its affiliate organization either through a designated state board or through a local nonprofit organization. Funding for the national JAG organization is provided by corporations, foundations, and other private contributions. States rely upon federal aid (e.g., Job Training Partnership Act [JTPA] money), in addition to funds from state legislatures, local districts, and private donors, to support their affiliates.

The JAG program has four basic components: selection of students, training, working with employers to hire students, and a nine-month follow-up on the progress of the participants. At each participating high school in a state having a JAG affiliate, eight criteria are used to select students for the program, which is geared toward at-risk high school youths:

1. one or more years behind modal grade for age group;

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*In February 1993, after this report was written, a national dialogue began between the advocates of youth apprenticeship and the sponsors of existing apprenticeship programs registered with the Bureau of Apprenticeship and Training or a state apprenticeship council. This dialogue included individuals who serve on the Federal Committee on Apprenticeship, a national advisory body which reports to the U.S. Secretary of Labor. All participants agreed that the lack of systematic approaches to school-to-work transition presents major problems for American youths as well as the United States economy. Everyone also agreed that apprenticeships and other work-based learning approaches offer much promise to resolve these problems. In addition, the registered apprenticeship community expressed its willingness to assist in these efforts. However, existing apprenticeship sponsors strongly objected to using the term "apprenticeship" to designate programs that are not registered as apprenticeship programs with the appropriate federal or state authorities. They pointed out that the term "apprenticeship" is already codified in federal and state laws and regulations (Federal Committee on Apprenticeship, 1992, p. 2). They also argued that establishing a separate "youth apprenticeship" model is misleading and compromises the integrity of the term "apprenticeship." As a result, the group agreed to use a name other than "youth apprenticeship," suggesting such alternatives as "career pathways programs" and/or "early career certification programs." Once an alternate name is selected, that name should be substituted for "youth apprenticeship" as used in this report.

2. very low academic test scores;

3. above average number of school absences;

4. placed on probation, suspension, or expelled within the past year;

5. economically disadvantaged family;

6. lives with only one or neither of the natural parents;

7. parents are not high school graduates; and

8. friends are high school dropouts or do not expect to graduate (Jobs for America's Graduates, Inc., 1991, p. 13).

The students most qualified to participate on the basis of these criteria, as determined by teachers, counselors, and school administrators, are enrolled in the JAG program at the beginning of their senior year.

A job specialist is assigned to each forty students in the program. During the school year, the job specialist has an obligation to spend at least 60 hours with each student in career-related activities. The activities are usually linked with the teaching of 37 job-related competencies and with the Career Association, a student-directed organization committed to instilling in participants the motivation, knowledge, and competitiveness necessary to succeed in the workforce. The 37 competencies were developed by JAG in cooperation with the private sector and are approved by the U.S. Department of Labor. Students are tested on these competencies before entering the program and after completing it, both to indicate the level of improvement and to guarantee the quality of the students coming out of the program. These job-related competencies are listed below (Jobs for America's Graduates, Inc., 1991, p. 13).

Career Development Competencies

1. Identify occupational interests, aptitudes and abilities
2. Relate interests, aptitudes, and abilities to appropriate occupations
3. Identify desired lifestyle and relate to selected occupations
4. Develop a career path for a selected occupation
5. Select an immediate job goal
6. Describe the conditions and specifications of the job goal

Job Attainment Competencies

7. Construct a resumé
8. Conduct a job search
9. Develop a letter of application
10. Use the telephone to arrange an interview
11. Complete application forms
12. Complete employment tests
13. Complete a job interview

Job Survival Competencies

14. Demonstrate appropriate appearance
15. Understand what employers expect of employees
16. Identify problems of new employees
17. Demonstrate time management
18. Follow directions
19. Practice effective human relations
20. Appropriately resign from a job

Basic Competencies

21. Comprehend verbal communications
22. Comprehend written communications
23. Communicate in writing
24. Communicate verbally
25. Perform mathematical calculations

Leadership and Self-Development Competencies

26. Demonstrate team membership
27. Demonstrate team leadership
28. Deliver presentations to a group
29. Compete successfully with peers
30. Demonstrate commitment to an organization

Personal Skills (specifically for student in JAG dropout prevention program)

31. Understand types of maturity
32. Identify a self-value system and how it affects life
33. Base decisions on values and goals
34. Identify process of decisionmaking
35. Demonstrate ability to assume responsibility for actions and decisions
36. Demonstrate a positive attitude
37. Develop healthy self-concept for home, school and work

Toward the end of the spring semester of their senior year, students are assisted in finding jobs and then monitored for nine months after graduation to obtain information on job loss, advancement, job changes, and moves for the pursuit of postsecondary education. Of the approximately 20,000 senior students served by JAG in the 1989-90 school year, 90 percent either graduated from high school or received their high school GED by the end of the nine-month follow-up period (i.e., by spring 1991); 78 percent were successful in either finding work or continuing on to postsecondary education; 64 percent of those with jobs had full-time jobs; and 29 percent continued on to some form of postsecondary education (Boylson, Correspondence, September 20, 1991). Additional data on JAG participants and funding in 1990 are provided in tables 1 and 2.

A new JAG program begun in 1988 is the Opportunity Awareness Program, geared specifically to dropout prevention. It starts working with students as early as the ninth grade, emphasizing the seven *Personal Skills* included in the job-related competencies listed above. This program continues to expand as well, although participant data were not included in the latest available JAG annual report (Jobs for America's Graduates, Inc., 1991, p. 11).

Overall, the JAG program seems to be successful in targeting those youths most at risk of dropping out of high school and giving them motivation and practical training. The majority of the participants do graduate, and many go on to postsecondary education. In addition, the program has replicable favorable results, and its costs are fairly low in comparison to those of similar programs (Newitt et al., 1984, pp. vi-viii). However, an issue that is not directly addressed through data on this program is what types of jobs the JAG graduates are getting. In addition, the program does not seek to improve the general student body or to look at the root of curriculum deficiencies. Jobs for America's Graduates, Inc., is a good first step; it addresses the immediate needs of the most at-risk students. In the long term, however, it must be supplemented by more comprehensive local, state, and national efforts.

Academy Programs

An academy is organized as a "school within a school," with a distinct group of students taking a sequence of courses together. The courses have an occupational focus and lay the foundation for careers in

Table 1. Demographic, Socioeconomic, and Schooling Background Characteristics of Jobs for America's Graduates, Inc. Participants: 1989-90 School Year

Characteristics	**% Participants with Characteristic**
Sex	
Female	56.1
Male	43.9
Race/Ethnic Group	
American Indian, Asian, Black, Hispanic	61.0
White	39.1
Living Arrangements	
Live With One Parent or Other Arrangement	58.3
Family Income (annual)	
$10,000 or less	26.6
$10,001 to $20,000	35.1
Family Received Public Assistance Income	28.1
High School Curriculum	
College or Preparatory	19.7
General Academic	47.2
Vocational Education	29.6
Other	3.5
Junior Year Grade Point Average	
C+ to C-	56.7
D+ and Under	11.6
Ever Expelled, Suspended or Placed on Probation	34.0
Senior Year Employment Status	
Mean Hourly Wage (Employed Only)	$4.71
Post Graduation Job/Schooling/Military Service Plans	
Work and School	55.7
School Only	1.5
Work Only	25.8
Enlist in Military	11.3

Source: Jobs for America's Graduates, Inc., *1990 Annual Report* (Washington, D.C., 1991), p.12.

Table 2. Jobs for America's Graduates, Inc. (JAG) State Participation and Funding: 1990

State	Year Affiliated	# of Schools Served	# of Students Served	Funding
Arizona	1990	3	90	$80,000
California	1989	10	506	320,000
Delaware	1980	25	1,544	1,100,000
Florida	1989	4	282	160,000
Georgia	1987	11	963	667,036
Maine	1988	12	322	315,000
Massachusetts	1981	18	1,856	1,020,000
Michigan	1982	2	101	116,000
Mississippi	1990	6	176	363,000
Missouri	1981	6	407	185,000
Montana	1990	4	41	159,000
New Hampshire	1987	13	928	577,000
Ohio	1985	80	6,322	3,268,357
Pennsylvania	1988	14	542	535,000
Tennessee	1981	77	4,641	3,315,725
Vermont	1986	10	341	195,795
Virginia	1982	18	1,190	672,500
Virgin Islands	1990	1	40	171,300
Washington	1986	5	154	171,087
Totals		319	20,446	$13,391,800

Source: Jobs for America's Graduates, Inc., *1990 Annual Report* (Washington, D.C., 1991), pp. 15-21.

a vertical segment of one field, such as health care or electronics. For example, a health academy would have a group of students planning to enter the health field, but some may be preparing to go to medical school to become surgeons while others prepare to be technologists. All would receive sound academic education in core subjects in the context of health issues, making school more relevant to the students' future career plans. Academies enlist the participation of local employers and rely on them for career-specific information, resources, internships, and job placements (Stern et al., 1992; Stern, 1991, p. 24).

Often the concentration of an academy is determined by the business interests in a community, and generally there is direct business participation in the academy. Local businesses collaborate in designing and implementing programs and in providing summer jobs for academy students. Academy programs differ from magnet vocational schools, however, in that the former prepare students for college as well as teach courses directly related to a specific career field in an ongoing integration of school-based training and work experience. Strong teacher-student relationships are fostered to dissuade students from dropping out; usually a subset of teachers works with the academy students over several years, developing and sustaining relationships with them and sharing information about them with the other teachers.

The academy program model was first piloted in Philadelphia in 1969. By fall 1991, nearly 80 programs across the United States were affiliated with the National Academy Foundation (NAF, 1991). The four primary academy models promoted through the NAF are the Academy of Finance, the Academy of Travel & Tourism, the Academy of Public Service, and the Ford Academy of Manufacturing Sciences. The Academy of Finance, the oldest of the NAF academies, was begun in 1982 as a project between American Express, Shearson Lehman Hutton, and the New York City school system. Students enter the program their junior year in high school. There are no strict criteria for choosing the students. In some instances, the students most at risk are chosen; in others, participants are chosen on the basis of their personal interest in the career focus of the academy. During their junior year of high school, students are required to take two or three academy courses per semester, designed cooperatively by industry representatives and educators. At the end of their junior year, students interview for internships with local finance-related businesses and are hired in entry-level positions. The internships are financed either totally by the employers or jointly by the state and the employers. In their final year of high school, students are permitted to take college-level courses, either at local colleges or in their high school.

Although the NAF Academy of Finance is considerably more developed than the other NAF academy models and has a substantially greater student enrollment, all four types of NAF academies operate in a similar manner and are essentially college preparatory programs. Tables 3 and 4 summarize student enrollments by academy site for the two largest NAF models, the Academy of Finance and the Academy of Travel & Tourism. Worth noting is that, of the 2,000-plus graduates of NAF academies, 60 percent have been minorities from inner-city public schools and 90 percent went on to enroll in higher education (NAF, 1990).

Florida has been especially active and innovative in the creation and use of academy programs, especially as alternative programs for at-risk students. Twenty-five of the 67 Florida counties have at least one school with an academy program. Approximately 5 percent of the students participate in such programs and are selected through an application process. Although less developed than the NAF academy models, Florida's programs range from criminal justice and environment academies to marine biology and health care academies. Teachers in the schools generally are hired to staff the academies; they are given new assignments according to their specializations and the focus of the academy in their school. Industry, business, and state agency internships, which high school students normally could not access on their own, are organized either for the summer or to complement academy courses during the school year. The state and the employer share student intern salary expenses (Kreis, Telephone interview, September 9, 1991).

The state's role in the academy programs in Florida is threefold: assisting in the design and planning of the academies; securing grant monies for new academies; and advising schools to ensure the success of academy programs (Kreis, Telephone interview, December 19, 1991). The original Florida commitment to

Table 3. National Academy Foundation Academy of Finance Student Enrollment History

School Districts	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991*
New York City, NY	35	200	350	350	370	400	472	529	569	570
Broward County, FL				50	150	227	209	221	243	240
Minneapolis, MN				20	50	67	149	191	201	200
Buffalo, NY					30	48	63	81	132	130
Chicago Comm. College, IL					30	70	87	82	60	85
San Francisco, CA					20	47	106	137	206	200
Wilmington, DE					60	97	90	95	119	120
Baltimore, MD						25	102	101	152	160
Omaha, NE						26	41	44	43	45
Phoenix, AZ						32	38	46	42	60
Seattle, WA						30	70	93	135	135
Granite, UT							28	82	100	100
Los Angeles, CA							55	90	126	130
New Hyde Park, NY							31	54	67	70
Cleveland, OH								123	173	175
Yonkers, NY								50	90	110
Atlanta, GA									38	60
Baton Rouge, LA									11	25
Boston, MA									31	35
Miami, FL									120	120
Prince George's County, MD									26	45
Salt Lake City, UT									11	15
Charlotte, NC										25
Charlotte Mecklenberg, NC										25
Chattanooga, TN										Feb'92
Chicago, IL										25
Jacksonville, FL										Feb'92
San Jose Unified, CA										25
Total Enrollment	35	200	350	420	710	1,069	1,541	2,019	2,695	2,830

Source: Unpublished data from the National Academy Foundation (New York, NY, 1991).

*Projected

Table 4. National Academy Foundation Academy of Travel & Tourism Student Enrollment History

School Districts	1987	1988	1989	1990	1991*
New York City, NY	32	80	130	183	185
Miami Springs, FL	44	81	65	165	200
Baton Rouge, LA				14	20
Boston, MA				31	80
Broward County, FL				49	80
Deer Valley, AZ				45	70
Denver, CO				36	50
Phoenix, AZ				41	65
Chattanooga, TN					Feb'92
Honolulu, HI					25
San Francisco, CA					25
San Jose East, CA					25
San Jose Unified, CA					25
Washington, DC					Feb'92
Total Enrollment	76	161	195	564	750

Source: Unpublished data from the National Academy Foundation (New York, NY, 1991).

*Projected.

academy programs was the result of 1988 legislation giving state grants to schools interested in pursuing the academy model. Costs for starting an academy range from $8,000 to $60,000, depending on the type of retraining and equipment necessary. New Florida academies receive funding mainly through federal and other grants, however. The state academy director takes an active role in the formation of new academies throughout the state and helps schools that want to establish academies obtain funding through the submission of grant proposals (Kreis, Telephone interview, December 19, 1991).

Likewise, the California Partnership Academies program was created legislatively to link school districts, local employers, and the California Department of Education through career-oriented "schools within schools." These academies focus on dropout prevention and college preparation, targeting low-achieving students starting in the ninth or tenth grades and relying on the school district to develop an interdisciplinary curriculum. The California legislature provides planning grants for new academies. Operational funds are based on a reimbursement arrangement covering student eligibility criteria and matching support from the school district and the business community; when fully implemented (year three and after), an academy receives $750 per student from the state, up to a maximum of $67,500 (Stanford Mid-Peninsula Urban Coalition, n.d.).

The academy is a very versatile model. It can be adapted creatively to use optimally the resources of communities, as demonstrated through Florida's and California's initiatives. Its career focus yields a variety of occupations from which its graduates may choose. Smaller class sizes also may promote closer ties between teachers and students and help potentially at-risk students better understand the importance of school in realizing their full potential. Finally, the academy teachers' exposure to business from arranging jobs and monitoring students provides firsthand experience with employment practices and opportunities (Dayton et al., 1992, pp. 543-544).

In order to be successful, however, an academy must have the solid cooperation of businesses or agencies in the occupational field of the academy. A public school with a body of teachers willing to accommodate the specific needs of an academy program must also exist. Moreover, each academy generally addresses the career needs of only a small proportion of the students in a school, so that it (similar to a JAG program) must be supplemented by other programs to meet broadly the school-to-work transition needs of students. In addition, academy program costs may be as high as $1,000 per student (Dayton et al., 1992, p. 545).

Technical Preparation (Tech Prep) Programs

The concept of tech prep was first suggested by Dr. Dale Parnell in his 1985 book, *The Neglected Majority* (Parnell, 1985; Stott, 1991, p. 23). Tech prep usually is organized in a "2+2" format that combines the last two years of high school and two more years in a community college through an "articulation agreement" that coordinates four years of academic and technical courses and leads to an associate degree or certificate in a technical area (William T. Grant Foundation Commission, 1991a, p. 25). (A variant is the "2+2+2" arrangement, in which the two years at a community college are followed by two years, and a bachelor's degree, at a four-year institution.) This type of program organization facilitates the transition of students from secondary schools to postsecondary education and gives consistency to their programs of study, leading to better trained workers. There is no redundancy in the technical training, as the high schools and the community colleges plan together the curriculum for any specialization commonly taught. In addition, a truly comprehensive study plan can be developed.

Ideal tech prep programs generally share six characteristics:

1. strong career counseling in early high school years;
2. effective secondary school-community college collaboration leading to integrated, coherent curricula;

3. shared secondary school-community college administrative oversight and responsibility;

4. applied academics coursework in basic subject areas;

5. increasing technical concentration from the first year through the last year of the program; and

6. strong and enthusiastic business participation in program planning, curriculum development, and student recruitment and retention (William T. Grant Foundation Commission, 1991a, p. 25).

Three main factors largely determine the success of a tech prep program. The first is effective communication. Communication is important both between the participating institutions and with the students who may be interested in the tech prep program option. Second, the support and cooperation of the community, especially local businesses, is a necessity for success. Not only does this participation spread awareness of the program, but it also creates an avenue for the crucial input of local businesses regarding their individual training needs. Finally, the availability of technical assistance in developing the tech prep curriculum will better ensure a comprehensive program (Lankard, 1991).

The Pee Dee Tech Prep Program in North Carolina is a good example of a successful program. Beginning in 1985, it has since expanded to twelve school systems with the help of state funding. Dropout rates in the original tech prep school system have decreased over the past six years, SAT scores have improved, and there is a large increase in the number of tech prep students enrolling in community college (Stott, 1991, p. 23).

Indiana created the first tech prep program through state legislation in 1987. By the 1994-95 school year the Indiana Tech Prep Curriculum Model will be developed for all Indiana high school students (W.T. Grant Foundation Commission, 1991a, pp. 25-26). Other state tech prep programs have been instituted in Washington, under the leadership of the Boeing Company (and with the assistance of the Northwest Regional Educational Laboratory); in Michigan, where recommendations of a 1988 statewide Tech Prep Task Force have led to over 30 Michigan Department of Education tech prep grants; and in Rhode Island, through a 1987 statewide agreement between the Community College of Rhode Island and the Rhode Island Department of Elementary and Secondary Education (W.T. Grant Foundation Commission, 1991a, pp. 26-27).

A fall 1990 six-state school-to-work transition pilot program funded by the U.S. Department of Labor, with matching grants from schools, businesses, and other agencies, to enhance students' basic workplace skills and knowledge of job requirements included tech prep projects among its funded initiatives ("Models That Link School and Work," 1991, p. 29; Nothdurft and Jobs for the Future, Inc., 1991, pp. 38-39). Its grant to the Maryland Department of Economic and Employment Development is funding Project Mechtech in metropolitan Baltimore and Tech Prep Plus in suburban/rural southern Maryland. In addition, the Boston Private Industry Council's Project Protech is creating structured tech prep paths into the health care industry which include youth apprenticeships.

Indeed, by June 1990 there were 122 tech prep programs operating in 33 states (Stern, 1991, p. 33). Moreover, as a result of the "Carl D. Perkins Vocational and Applied Technology Education Act of 1990" (P.L. 101-392, Title III, Part E), tech prep programs are now being implemented in *all* states. In order to obtain its share of the federal funds provided under this law ($63.4 million in fiscal year 1991), each state has submitted to the U.S. Education Department a plan for developing local tech prep consortia of schools and two-year colleges and is now implementing its plan (W.T. Grant Foundation Commission, 1991a, pp. 25-27).

Evidence from the early evaluations of tech prep indicates that it may have significant effects on reducing school dropout rates. Studies in Florida and North Carolina have found that schools with tech prep programs have been able to reduce dropout rates by as much as one-third.

Youth Apprenticeship Programs

The recent revival of youth apprenticeships has been inspired by the success of such apprenticeship systems as those in Germany and Denmark. Apprenticeship programs have existed in the United States for a number of decades; these programs are registered with the U.S. Department of Labor or a state apprenticeship agency. However, such programs have been concentrated in only a few professions and have not been structured to enhance transition from high school to work. A majority of the apprenticeships listed with the U.S. Department of Labor, for example, are in the field of construction; further, the total number of civilian apprentices has remained at roughly the same level it was 30 years ago. Thus it is obvious that the availability of apprenticeships has not evolved with the changing American economy. Fewer than 2 percent of U.S. high school graduates enter apprenticeships (W.T. Grant Foundation Commission, 1991a, p. 21). As a result, numerous reports and researchers have recommended a major expansion of youth (or student) apprenticeship opportunities in the United States (see, for example: U.S. General Accounting Office, 1991; Lerman and Pouncy, 1990a; Lerman and Pouncy, 1990b; Nothdurft and Jobs for the Future, Inc., 1991).

The basic youth apprenticeship model consists of two phases -- the attainment of a basic academic level by the tenth grade and the selection of a trade-based path with substantial work experience in addition to the classroom training for the remaining years of high school (two to three years). The end product is a skilled worker with universally accepted credentials in the chosen field. The philosophy behind this model is that required academic schooling is not enough to produce fully skilled workers. The best environment to learn work skills is on the job. Thus, a long-term commitment of cooperation is required from businesses, students, and government.

The goal of the many models being proposed in the United States is to develop an approach that will be suitable to American education and employment systems. Six premises for an American youth apprenticeship program were presented in the report of the December 7, 1990 youth apprenticeship conference in Washington, D.C.:

1. It must recognize and accommodate the diversity inherent in the American populace.

2. It must be part of a broad effort to improve the linkages between the world of work and the world of high school for all students, including those bound for college.

3. It must provide early exposure to work experiences and genuine opportunities for workplace learning, with training wages paid by employers.

4. It must result in formal, universally recognized credentials that meet nationwide standards that are the product of the collaboration of government, education and labor agencies, union representatives, and business.

5. It must ensure apprentices of opportunities to go on to further education, should they seek it, after receiving their apprenticeship credentials.

6. It must encourage lifelong skill-building (Nothdurft and Jobs for the Future, Inc., 1991, p. 19).

Many of the controversial aspects of youth apprenticeship, such as its perception as a forced channeling of students into non-college preparatory courses, will be eliminated if these principles are adhered to by groups collaborating on the development of youth apprenticeship programs.

A number of states have undertaken new or expanded apprenticeship efforts. By 1991, Wisconsin and Arkansas, for example, had enacted legislation instituting youth apprenticeship programs. (Both states also are among the sites receiving technical assistance from Jobs for the Future, Inc. through its National

Youth Apprenticeship Initiative; see William T. Grant Foundation Commission, 1991b, pp. 6, 11.) Wisconsin has proposed three youth apprenticeship models:

1. an occupational cluster program design;
2. a cooperative education apprenticeship program model; and
3. a tech prep youth apprenticeship program model (Department of Industry, Labor and Human Relations et al., 1991, pp. 5-6).

In the first model, students enroll after passing the tenth grade skills assessment exam. The last two years of high school include applied academics courses with relevance to the area of desired specialization (i.e., specific to an area of skills as opposed to one unique skill), in conjunction with a job in a related field after the first semester of study. Employers are reimbursed for half of a student's wages until the final semester of the student's work. In the final semester, students, with the guidance of counselors, choose to pursue post-graduation apprenticeships, apply to a postsecondary education program in the technical field of their choice, or seek full-time employment. The second (i.e., cooperative education) model has a similar balance of work and applied technical coursework, except that the employer pays the entire salary and a student's coursework is more job specific. Prior to graduation, the option for an apprenticeship is presented to both the employer and the student. If an agreement is reached, the student starts work upon graduation. The tech prep model uses the tech prep framework, but incorporates an apprenticeship. For the last two semesters prior to high school graduation, students work in jobs related to their occupational specializations, with the goal of continuing the apprenticeship while pursuing the subsequent associate degree or baccalaureate degree.

Arkansas is considering four models suggested by Jobs for the Future, Inc. The first involves a team of three or four teachers for each 50 students; the teachers work exclusively with their student group in the setting of a community college, planning and teaching the curriculum and monitoring the students' progress in their specialization-related work. The second model is the same as the first, with the classes located in the high school. The third model is a mix of general academic courses taken with regular students and teachers and apprenticeship-specific courses taken in the high school, but with the latter courses limited to students in the youth apprenticeship program. The final model consists of no program-specific courses, except for a basic core, and includes only a link to employers and postsecondary education opportunities (Jobs for the Future, Inc., 1991, pp. 42-43).

Arkansas and Wisconsin education agencies also have been the recipients of youth apprenticeship program design and development grants from the Council of Chief State School Officers (CCSSO), as were the education agencies of California, Illinois, Iowa, Michigan, Pennsylvania, Vermont, Virginia, and West Virginia (William T. Grant Foundation Commission, 1991b, pp. 1, 3, 12). These awards are part of a three-year council grant program, supported by the Pew Charitable Trusts and the Charles Stewart Mott Foundation, to connect schools and workplaces more effectively. In a second round of awards, CCSSO provided $50,000 to departments of education in each of five states -- California, Maine, Minnesota, West Virginia, and Wisconsin -- in 1992 to support the implementation of statewide youth apprenticeship programs (William T. Grant Foundation Commission, 1992, p. 2).

Other State School-to-Work Transition Initiatives

The most comprehensive state school-to-work transition strategy has been developed in Oregon (W.T. Grant Foundation Commission, 1991a, pp. 11-12, 17-18, 22, 46). Legislative actions taken in 1991 in Oregon include continuation of the Oregon Progress Board through 1995 (H.B. 2249); creation of the Oregon Workforce Quality Council (H.B. 3133); establishment of the Oregon Youth Apprenticeship Training Program (H.B. 3469); and appropriation of lottery funds to improve the quality of Oregon's workforce through Workforce 2000 II (H.B. 3474). The most far-reaching 1991 legislative action, however, was the

"Oregon Educational Act for the 21st Century" (H.B. 3565), sponsored by State Representative (and former Speaker) Vera Katz.

The "Oregon Educational Act for the 21st Century" aims to reform and overhaul Oregon's education system by raising student achievement in key areas and ensuring that high school graduates are well prepared both for college and for work. The legislation divides primary and secondary education into two phases of certification. The first stage is that of initial mastery. It is achieved through passing the examination of initial mastery, usually at the end of the tenth grade. After successfully achieving initial mastery, the student chooses between a college preparatory curriculum and a technical one. Avenues to transfer between the two programs will be provided, and both programs will prepare students with the necessary skills required for postsecondary education. Upon completion of the high school curriculum of their choice, students will again take a mastery exam. If they pass, they will receive a certificate of advanced mastery. Thus, each student will meet rigorous general standards and, in addition, will have specific training, through work and academic experience, in the area of her/his choice. If students do not progress satisfactorily through the different levels of mastery, the schools will be held accountable. This accountability is an added impetus for schools to strive actively and creatively to meet the needs of students within the state-mandated framework of high performance outlined in the "Oregon Educational Act for the 21st Century."

In other states, legislative and executive branch actions also have been aimed at improving education, increasing community cooperation, and creating a more highly trained workforce. For example, in September 1991 California enacted a law (S.B. 662) requiring schools to provide a record for students (beyond their transcript) containing test scores and information on work experience that would be useful to potential employers. Ohio passed legislation mandating each school district to set up a Business Advisory Council, giving the business community a hand in local school programs. The role of the council is to advise the school board on technology, staff development, curriculum, career awareness, and assessment of employment skills. On February 7, 1991, the Indiana governor issued an executive order creating the Department of Workforce Development. Massachusetts Jobs, created in 1988 and reauthorized in 1991, is a public-private council charged with establishing consistent and effective policies for workforce development and employment-related education.

Conclusions

Each of these state initiatives has the potential to improve school-to-work transition. However, the successful implementation of the various models and programs in specific schools requires strong local initiative. Businesses must work closely with their local school districts to find the most suitable methods of cooperation in order to maximize the benefits reaped by all of the involved parties. Thus, each state must do more than support one method or a group of methods.

A state can be most effective when it provides a solid framework for high educational standards and a system that successfully accommodates the diverse needs of students and the business community. (The Oregon legislation is a good example of the type of framework a state could provide.) In addition, a state could significantly enhance school-to-work transition in its schools by developing, either alone or with other states, a widely accepted certification method for nonacademic specialties taught and practiced within the schools. A group of midwestern states, led by Wisconsin, is discussing such a strategy. Other states, including California and Vermont, are exploring ways to report student credentials in an accessible and clear format that is useful to employers as well as colleges.

In order to monitor the progress and the effectiveness of various programs, it would be invaluable for states to develop a comprehensive, consistent method of student skills assessment. States could also serve well as centralized sources of information regarding the school-to-work initiatives being used or tested throughout the country. The availability of such information would avoid redundancy in resource allocation and speed up the local implementation of existing models for improving education and school-to-work transition.

Finally, restructuring the state education system to incorporate school-to-work transition programs must be a dynamic and long-term process. The state role in this process also must be a flexible one, bounded only by solid goals and standards that encourage local initiative and demand a high level of student, school, and business cooperation and performance.

Promising Initiatives in Other Localities

In efforts to decrease student dropout rates and increase the value of skills acquired by public high school graduates, communities nationwide have launched diverse school-to-work transition partnerships to connect more effectively student success in the classroom with success in the workplace. Partnership objectives for communities surveyed in this report include

1. changing student attitudes toward school through meaningful priority hiring and scholarship incentives;

2. transforming schools into student-friendly learning centers;

3. reevaluating school curricula with respect to the development of necessary workplace skills; and

4. ensuring that businesses and industry reward high school student achievement through priority hiring and provide high school graduates with career employment opportunities and meaningful training paths.

This report profiles twelve effective community-based school-to-work transition programs from which Austin educators and employers might gain useful information and insights. Five of the cities -- Boston, Louisville, Pittsburgh, Providence, and Rochester -- were selected from the twelve demonstration sites participating in the Compact Project, a National Alliance of Business (NAB) education improvement project that has influenced education and business partnerships nationwide (National Alliance of Business, 1989). These partnerships generally have incorporated the original Boston Compact "exchange" of increased school attendance, high school graduation rates, and basic skills competency for guaranteed priority hiring in summer and full-time private sector jobs. Philadelphia and Portland (Oregon) were selected because they received positive assessments in an evaluation of the effectiveness of school-to-work programs in raising the skill levels of entry-level workers (CSR, Inc. et al., 1990), while Tampa is included because it is the site of the initial Educational Testing Service (ETS) WORKLINK™ pilot project to assess and record student skills and to make such information readily available to employers (Rothman, 1992). Two Texas cities are included: Fort Worth, because it is among national leaders in its advanced skills identification efforts, and San Antonio, because of its focus on dropout prevention and its proximity to Austin. The final two profiles describe a proposed integrated education, training, and employment system for the Los Angeles area and a program providing New York City youths organized access to jobs.

All twelve of the programs profiled below are exemplary pioneering efforts which could be instructive as an overall Austin model takes shape. However, some programs have faced external constraints or situations in which a program "partner" did not meet the terms set by the agreement; continuing the commitment to collaborate, without relaxing standards, has been an ongoing challenge and a test for the long-term viability of community-based partnership programs. Austin is in a position to learn from the positive and negative experiences of these other communities in developing its own plan for school-to-work transition.

Boston Compact

The Boston Compact, initiated in 1982 and renegotiated in 1988, has brought together Boston public schools, business leaders, trade unions, and local colleges in a joint effort to improve education, work preparation, employment opportunities, school attendance, and college admissions for Boston public school students. The school system committed to improve daily attendance, reduce the dropout rate, and increase math and reading skills. In return, the business community agreed to expand summer jobs and work study opportunities and to offer priority hiring to public high school graduates. Area colleges offered to increase their recruitment of local high school graduates (William T. Grant Foundation Commission, 1991a, p. 33).

Initially, businesses participating in the Boston Compact had a great deal of success in fulfilling youth employment goals, yet at the same time the schools were actually experiencing increases in dropout rates. Subsequently, however, businesses and schools both succeeded in meeting their goals (National Alliance of Business, 1989, p. 3). Despite high unemployment in the Boston area, summer 1990 brought employment for over 3,500 students in 992 firms, while between 1986 and 1990 high school dropout rates declined from 39 percent to 33 percent (William T. Grant Foundation Commission, 1991a, p. 33).

The Boston Compact continues to serve as a model for many community business and education partnerships. Six partnership principles are now widely accepted as important:

1. agree on the critical nature of the problems and a common vision for the future;

2. work through preexisting public and private sector relationships;

3. establish a viable business intermediary;

4. recruit top leadership from business and schools;

5. establish sustained, long-term commitments from all partnership members; and

6. set measurable, clearly defined goals (National Alliance of Business, 1989, p. 3).

The Boston Compact was challenged in the early 1990s when the recession diminished the program's number of placements and when employers expressed concern that the schools were not fully upholding standards and that workers hired under the agreement were not adequately prepared to enter the workplace (Glover and Marshall, forthcoming 1993). However, the Boston Compact participants discovered that committing to performance goals with measurable objectives, regularly measuring performance, and disseminating results were all critically important in order to provide feedback to both employers and schools and to maintain the viability of the partnership.

Louisville Education and Employment Partnership

The Louisville Education and Employment Partnership was recognized by the National Alliance of Business as the 1990 Business/Education Partnership Program of the Year. It serves as a model youth initiative in student retention, work readiness, and postsecondary education/training readiness. Though the Louisville Partnership began as an effort to assist students to stay in high school and graduate, it has evolved into a comprehensive four-year program to help at-risk students with varying levels of academic achievement and economic backgrounds make the transition to work or to continued education.

A career planner is assigned to each of 21 high schools in the Jefferson County (Kentucky) public schools system. Each year ninth-grade students are recruited into the Louisville Partnership. To participate, students must continue to meet eligibility criteria and agree to participate in a four-year curriculum in Pre-Employment Work/Maturity Skills; students and their parents also must sign a participation agreement.

In addition to programs focused solely on at-risk student populations, the Louisville Partnership offers a variety of opportunities for students and adults throughout the Jefferson County community. These include a Student Career Introduction Program, Mentoring Program, ACT/SAT seminars, Sex Equity/Career Awareness seminars, Cities in Schools (which involves case management for families involved with social service providers), and the Basic Skills Connection mentoring and tutoring program (Louisville Education and Employment Partnership, 1991).

Pittsburgh Promise

Pittsburgh was selected as a National Alliance of Business (NAB) Compact Project site due to its preexisting business/education partnership activity. Compact Project efforts resulted in the creation of the Pittsburgh Promise, a community partnership for dropout prevention, student career awareness, and community development.

The Pittsburgh Promise recognized a need to re-energize the city's school district. This process was implemented through the development of teacher centers which provide five-to-eight-week training sessions for district teachers. Over a period of time, all teachers will be released from regular teaching duties to attend a center for staff development in effective teaching, new instructional techniques, child and adolescent development, and research in their subject areas. In addition, minigrants and money awards are given to teachers and administrators who develop creative curriculum and administration methods. The Pittsburgh Promise also has worked to make schools more student-friendly by addressing the nontraditional needs of today's students. For example, programs which promote teenage pregnancy prevention and neighborhood family support are in place (National Alliance of Business, 1989, pp. 43-45).

Greater Providence Chamber of Commerce School-to-Work Transition Program

The Greater Providence Chamber of Commerce School-To-Work Transition Program encourages and assists students from three area high schools to stay in school and graduate with a clearly articulated career focus and avenues of pursuit.

Businesses, schools, and students have demonstrated strong commitment to the Providence partnership. Businesses assist schools in the creation of curricula which incorporate the development of workplace skills. These curricula are taught by high school business education teachers in "World of Work" elective courses. Students receive direct assistance from businesses in the form of employee mentoring, job shadowing, and preferential job interviewing. Schools monitor student participant progress and continually update curricula to include job readiness skills which are identified by the business community and interpreted by educators. Students must continue to meet high attendance, grade, and "World of Work" course participation requirements to achieve program benefits (Greater Providence Chamber of Commerce, n.d.).

Rochester School-to-Work Transition Initiative

In 1991 the Rochester School-To-Work Transition Task Force, which involved 35 individuals representing 26 organizations from the Rochester community, concluded six months of active deliberation with a proposal for a school-to-work transition initiative that "appears to be the most comprehensive system of its kind in the country" (National Center on Education and the Economy, 1991b, p. 2).

The Rochester approach is based on the belief that all young people should have the opportunity to pursue meaningful career opportunities through work, technical training, and two-year or four-year colleges. The Task Force defines success as "bringing every student up to academic and work standards, benchmarked to the highest in the world, so that a student can actually choose a career direction to be pursued via high school, technical training, and post-secondary education" (National Center on Education and the Economy, 1991b, Executive Summary, p. 3).

If the Rochester proposal is fully implemented, it will incorporate existing and new programs into a system which aims to

1. "change the preK-12 curriculum to link school and work, include a career awareness focus and develop work readiness skills to enable all youth to choose a career direction by the tenth grade";

2. "involve employers as partners in the total educational process";

3. "provide a coordinated support system that is linked to parents and available to every student that needs it";

4. "establish technical training and youth apprenticeships that lead to meaningful career opportunities starting in the eleventh grade"; and

5. "internalize the School-to-Work Transition both within the District and the community" (National Center on Education and the Economy, 1991b, Executive Summary, p. 3).

Philadelphia High School Academies, Inc.

Philadelphia opened its first academy, the Electrical Academy, in 1969 at the local high school with the highest dropout and lowest attendance rates. The academy's goals were student retention and preparation for employment. The Electrical Academy was successful, and today Philadelphia academies encompass grades 9 through 12 and serve over 2,700 students in the automotive, business, electrical, environmental technology, health, horticultural, fitness and health promotion, and hotel/restaurant/tourism fields. The Philadelphia School District, teacher unions, and local business community established Philadelphia High School Academies, Incorporated, (PHSA) as an umbrella coordination group for the operation of Philadelphia "school within a school" high school academies (CSR, Inc. et al., 1990, p. 8).

With the exception of the Philadelphia Health Academy, which primarily focuses on academic science classes in a vocational setting for college bound students, most PHSA academies target non-college bound students who plan to enter the workplace upon graduation (Stern, 1991, pp. 27-28).

Portland Investment

The Portland Investment is a community partnership effort to increase economic development opportunities and decrease public service dependency through dropout reduction and career awareness. This partnership serves as an umbrella group for the coordination of 16 programs for families, children, and youth. Together, these programs serve more than 2,300 individuals every year (U.S. Department of Labor, 1992, pp. 25-26). The Portland Investment follows a prekindergarten-grade 12 continuum approach to school-to-work transition program development.

Programs initiated by the Portland Investment include self-esteem building in the middle schools, as well as applied basic skills development, private sector work experience, competency-based preemployment training, and vocational skills instruction for high school youths. Noneducational needs of students are addressed through teen parent and homeless youth programs. The Comprehensive Summer Youth Employment Program provides year-round, multiyear, part-time employment involving work assignments which complement school curricula. Summer employment is scheduled to accommodate youths who need to register for summer school classes to improve their basic skills (CSR, Inc. et al., 1990, p. 9).

Greater Tampa Chamber of Commerce

Project Labor Force, the Greater Tampa Chamber of Commerce partnership, targets general studies high school seniors for career and skills development instruction. Schools and businesses are matched as partners based on geographic proximity. The Greater Tampa Chamber of Commerce and the Hillsborough County school administration provide general guidance, but the individual school and business partnerships are given a great deal of flexibility in the development and implementation of their programs. Business partners typically participate in school curriculum development and classroom instruction. The school's business education teacher and the business firm's human resources manager usually pair up to design and teach Project Labor Force courses. Students often visit businesses for "hands-on" learning and observation. The success of Project Labor Force has been at least partially attributable to the teacher involvement in the development of the partnerships (Greater Tampa Chamber of Commerce, n.d.(a)).

Another Greater Tampa Chamber of Commerce school-to-work transition joint initiative is WORKLINK™. A computerized on-line system developed by the Educational Testing Service (ETS), WORKLINK™ assesses student skills and electronically matches graduating seniors based on their achievements in high school to the hiring criteria of employers in business, industry, and government. The system, piloted by ETS in the Tampa area, is designed to introduce graduating students to employers in a positive way, allowing students to customize their records at their own pace throughout high school. Students are encouraged to achieve in school since employers will see student grades, behavior assessments, work records, awards, and honors when considering the students for employment (Greater Tampa Chamber of Commerce, n.d.(b); ETS, 1991; Rothman, 1992).

Fort Worth Project C^3

The Fort Worth Project C^3 brings corporations, communities, and classrooms together to transform education in the Fort Worth Independent School District (Fort Worth Independent School District, 1991b). The project's mission is to prepare Fort Worth students for success in school, in the workplace, and in life. Although this mission is similar to the goals and objectives of other community school-to-work initiatives, the Fort Worth operational design and "blueprint" for system transformation are unique and comprehensive. Indeed, Project C^3 has developed a process for the ongoing introduction and facilitation of change.

Communities nationwide are looking toward the Fort Worth workplace skills identification and curriculum reform process for guidance in developing their own programs. In order to determine workplace requirements and skill levels, Project C^3 went to more than 3,500 employees from 280 businesses, institutions, and agencies and performed over 850 job analyses (Fort Worth Independent School District, n.d., p. 1). Workers and supervisors identified the common tasks performed in similar jobs; explained in detail what workers do to perform successfully each task; and, finally, used a five-point descriptor rating scale to specify the level of proficiency necessary to perform successfully the tasks for each job. The results of these assessments indicate that Fort Worth schools must do much more if they are to prepare their students adequately for the workplace. Students need not only higher levels of reading, mathematics, and writing basic skills, but also stronger speaking and listening, computer literacy, reasoning and problem solving, and originality and creativity skills (Fort Worth Independent School District, 1991a, pp. 1-3).

After initial survey results were compiled, Fort Worth teachers interviewed employees and collected work samples. Teachers used the samples to develop applied learning activities and assignments which teach students the identified skills. These applied activities currently are taught in selected schools on a pilot basis, with plans to incorporate these programs districtwide in the future (Fort Worth Independent School District, 1991c).

San Antonio Education Partnership

The San Antonio Education Partnership (SAEP) is a cooperative community venture established in 1988 in response to unacceptable high dropout rates and standardized test failure rates in several high schools. SAEP partners include the City of San Antonio, the Greater San Antonio Chamber of Commerce, the Industrial Areas Foundation, local colleges and universities, and eight high schools in six San Antonio school districts. SAEP administrative costs are primarily covered by JTPA funds, plus various private donations (SAEP, n.d.).

The SAEP is designed to motivate students with respect to academic excellence and attendance. Community leaders guarantee scholarships to local colleges and universities or preferential access to entry-level jobs in the community to every participating student who graduates with an attendance record of at least 95 percent and a grade average of at least 80. The program, as might be expected, is popular among eligible students in the participating high schools. More importantly, the results also are noteworthy, with student dropout rates decreasing and youth employment and higher education opportunities increasing for project participants (SAEP, 1990).

Funding for the SAEP's postsecondary education incentives is provided through the nonprofit San Antonio Education Fund (SAEF) established in 1989, which obtains its funding from local corporations, joint promotions with local business, and foundations. SAEF scholarship expenditures for the 1991-92 academic year totalled $550,000. In addition, SAEP students receive priority from local colleges and universities in the allocation of financial aid (Bidus, Telephone interview, October 24, 1991).

Workforce LA

Workforce LA was organized in 1988 to develop and coordinate the implementation of an integrated education, training, and employment system for the Los Angeles area. Underlying the Workforce LA initiative in Los Angeles is the belief that a primary function of school is to prepare students for the workforce (Workforce LA, 1991). Initiated with a $100,000 grant from the California Department of Education to develop a "K-Jobs" model for school-to-work transition, the project partners for Workforce LA include representatives from the Industry Education Council of California, the Los Angeles Community College District (LACCD), the Los Angeles Unified School District (LAUSD), and the Los Angeles County Office of Education (LACOE), as well as chief executive officers from business and industry, government, labor, and the community (Industry Education Council of California et al., 1988).

Workforce LA's "how to" handbook for school-to-work transition, *Tomorrow's Workforce: A Blueprint for Action* (1991), outlines a continuum of age-appropriate learning activities, school and community events, workplace learning experiences, and numerous resources that begin in the primary grades and continue through one's adult life. The main purpose of the handbook is to provide models for career development. The handbook also focuses on behavioral skills and the traditional reading, writing, and arithmetic skills, and identifies procedures, activities, resources, and evaluations for such skills within different age groups.

Workforce LA established the Commission on Workers, Education, and Employment to carry out its goal of infusing career development in the learning process. The commission's mission is to develop a partnership that will enhance communication among Workforce LA partners. This mission has three phases (Sanchez, Telephone interview, February 25, 1992). Phase I, the research and design of the Workforce LA notebook, was finished December 1990 and took approximately nine months. Phase II, the formation of programs for each specific category [e.g., K-grade 5, grades 6-8, grades 9-12, community college, and the roles of others (i.e., business, government, labor, and media)] continued through 1992. It included the formation of "model collaborative teams" to devise various strategies for implementation, as well as task forces on career education, guidance and counseling, student monitoring and follow-up, parent and family involvement, professional development, and teacher preparation and credentialing. The last phase will be the actual implementation of various models, projected to take place in 1993. In this phase, the Workforce LA partners will work together to choose actual school sites for pilot projects (Sanchez, Telephone interview, April 24, 1992). The Workforce LA model also is being considered for statewide expansion into a Workforce California model (Sanchez, Telephone interview, February 25, 1992).

New York City Job and Career Center

The New York City Job and Career Center (NYCJCC) aims to provide organized access to career information and jobs. In fall 1989, the New York State Department of Labor opened its first Job and Career

Center in Brooklyn. The NYCJCC now has two branches (Brooklyn and Manhattan) designed to help youths find jobs and plan for careers by introducing them to businesses and business people, by showing them how their talents can be applied to the needs of employers, and by conveying the message that careers and success are earned through hard work, education, preparation, and an understanding of an employer's needs. Career guidance is offered daily, as are descriptions of career options. Videotaped mock interviews help young people evaluate themselves and their techniques during job interviews (through the use of closed circuit TV). Students also participate in seminars on employability skills and job application techniques, as well as special workshops on substance abuse. Approximately 15,000 people participate in this program yearly (Dacy, Telephone interview, March 27, 1992).

The administration of the two centers is somewhat different. The Brooklyn center is funded and staffed almost exclusively by the New York State Department of Labor, while the Manhattan center is a private nonprofit enterprise with 75 percent of its staff on loan from the Department of Labor. Both centers are housed in Department of Labor buildings, and donations from wealthy private individuals make up a significant portion of the remainder of their funding sources (Dacy, Telephone interview, March 27, 1992).

Approximately 20 percent of the people visiting the Manhattan center annually are adults, while 60 percent are high school students (Dacy, Telephone interview, March 27, 1992). The rest may be middle school students and other users with special needs (e.g., young mothers and unemployed elderly). Many high school participants are dropouts who are earning their GED with the help of one of the various community organizations with which a center works closely. Since most parents work during the day and the centers are only open from 9 a.m. to 5 p.m. on weekdays, parent involvement is generally not strong. However, there are a few workshops at which parents may observe their children's progress.

The New York City Job and Career Center is a comprehensive program that offers a model for career development and training run by government support. However, it has not changed schools. The NYCJCC does not address the K-12 continuum, nor has it been successful in integrating the necessary skills into the New York City high school curriculum. Reportedly, school administrators in New York City today are so preoccupied with "crisis management" of problems such as gun proliferation, substance abuse, and teen pregnancy in the schools that they do not have the energy or opportunity to begin solving problems of basic skills weaknesses and the lack of positive behavioral attitudes in schools (Dacy, Telephone interview, March 27, 1992).

Chapter 4. The Texas Context

Since education is a state-local responsibility, school-to-work transition should be a state-local endeavor. With more than half of the Texas state budget spent on education and with public education in Texas relatively centrally organized compared with other states, it is especially important for Texas to develop a statewide framework for fostering improved linkages between school and work. At the same time, local entities are critical to implementation. Overall, the best chance for building systematic replication of projects to improve the school-to-work transition is to engage both state and local levels by building the initiative into an ongoing system.

As of early 1993, Texas had no systematic state policy regarding school-to-work transition. Recognition of the need for a statewide approach is increasing, however, and several efforts are underway to develop such an approach. This chapter reviews recent developments related to school-to-work transition at the state level in Texas.

Workforce Development as a State Priority

The connection between educational and economic performance has never been more apparent, as recently documented in several national studies (Marshall and Tucker, 1992b; Carnevale, 1991; Commission on Skills of the American Workforce, 1990; Dertouzos, Lester, and Solow, 1989; Johnston and Packer, 1987). These issues also have been receiving increasing attention from Texas policymakers.

One impetus to better align education, training, and student performance with labor market outcomes is the high dropout rate in Texas schools. Fully one-third of Texas students drop out prior to completing high school. Indeed, with a population of 19 million, Texas has more school dropouts than the entire nation of Japan with its population of 129 million! The Texas Legislature in its 1984 school reform law (House Bill 72) established a goal for Texas schools to achieve a 5 percent dropout rate by the year 1997. Thanks to further efforts by the Texas Legislature (H.B. 1010), dropout rates by campus are now compiled statewide using a common definition of "dropout," and this information is a factor in school accreditation decisions. In addition, school reform legislation is requiring schools to begin offering community-based services and learning options for at-risk students.

Demographic trends in Texas add urgency to the concerns about school dropouts. In the 1990-91 school year, minorities comprised a majority of public school enrollments statewide for the first time. By the year 2015, Texas is projected to become a "majority minority" state in terms of its total population (Marshall and Bouvier, 1986). Unfortunately, school completion rates vary dramatically by ethnic/racial group; the rate of attrition is 45 percent for Hispanics and 34 percent for African Americans, compared with 27 percent for whites (Intercultural Development Research Association, 1986). Texas faces the additional challenge of having high proportions of its children growing up in poverty. The percentage of children under 18 who were poor in 1985 was 23.3 compared with a national average of 20.9 percent. That year, Texas ranked 39th among the states in terms of the proportion of its children in poverty (Children's Defense Fund, 1990). Poor families are generally in the worst position to be able to assist youngsters to make a good transition from school to work.

The fragmentation of occupational preparation efforts has been another driving theme of criticism in Texas. The Governor's Task Force on Vocational Education (1988) argued that the effective and efficient delivery of occupational training is essential to ensure the continued competitiveness of the Texas economy and continued improvements in living standards for its people. The Task Force found that each entity in the Texas "system" of vocational education was pursuing its own objectives. High school vocational courses were offered in approximately 950 independent school districts, while postsecondary occupational programs were offered at 49 community college districts operating 66 campuses, four campuses of the Texas State Technical Institute (with two extension centers), two campuses of Lamar University, six health science centers, and approximately 360 proprietary schools across Texas. In addition, numerous extension services and apprenticeship programs offered a variety of occupational training.

The Strategic Economic Policy Commission, in its 1989 report to the 71st Legislature, recognized deficiencies in the Texas workforce as a serious barrier to the future growth of the Texas economy (Texas Strategic Economic Policy Commission, 1989). The legacy of high rates of school dropouts and a fragmented education and training system account for a poorly prepared Texas workforce. The commission concluded that a clear need existed to develop a more integrated system for training and retraining workers for the Texas economy, which is the 12th largest national economy in the world.

The "Smart Jobs Task Force" initiative launched by Governor Ann Richards in spring 1992 was more forceful and specific in pointing out the need to develop the Texas workforce as a prerequisite for continued economic prosperity. It singled out improving school-to-work transition across Texas as a key issue that deserves special attention. By fall 1992, the Governor's Office and the State Affairs Committee in the Texas Senate both were preparing legislation to address workforce development issues during the 1993 regular session of the Texas Legislature. The Texas Comptroller of Public Accounts also has published a long-range strategic plan calling for implementation of school-to-work transition measures (1993).

Texas has additional strengths upon which to build as well. Especially noteworthy are its Interagency Working Group on School-to-Work Transition, its Quality Workforce Planning system, its tech prep initiative, and the movement toward new forms of student assessment embodied in the Committee on Student Learning and the state's participation in the New Standards Project. Also, Texas secondary schools and two-year postsecondary institutions already make widespread use of various forms of "learning by doing" in worksite settings through cooperative education, clinical practicums, internships, and apprenticeships. During the 1988-89 school year, for example, almost 40 percent of all occupational training programs on the 74 campuses of Texas community colleges and technical institutes offered some form of worksite training component (Glover and Shelton, 1987). Although the programs varied significantly in quality, the fact that they existed demonstrates that work-based learning is not a foreign concept to postsecondary educators in Texas. In addition, Texas has a strong State Occupational Information Coordinating Committee (SOICC), which offers an excellent resource for improving career guidance.

Interagency Working Group on School-To-Work Transition

In spring 1991, the Lyndon B. Johnson School of Public Affairs organized an informal working group on school-to-work transition composed of staff from four state agencies -- the Texas Department of Commerce, the Texas Education Agency, the Texas Higher Education Coordinating Board, and the Texas Employment Commission. Over the following year, the group met two dozen times, serving as a forum for dialogue and a vehicle for educating participants on school-to-work transition issues.

During 1991 and 1992, agreement on various propositions was reached by working group participants. First, Texas needs a statewide school-to-work transition initiative which should be fashioned and promoted in collaboration with Governor Ann Richards' office. Second, a good place to begin is the framework laid out in the report of the Commission on Skills of the American Workforce, *America's Choice: high skills or low wages!* (1990). Third, the group agreed to use the regional Quality Workforce Planning (QWFP) system, a nationally recognized initiative, to improve and implement labor market planning across Texas on a regional basis. Fourth, it was agreed that there is no one best learning-training path or single model of school-to-work transition that will work well for all youths and all firms. Rather, a variety of approaches should be fostered, including tech prep, youth apprenticeships, and cooperative education.

The interagency working group became a means to educate state and local officials and business people about school-to-work issues. It planned and implemented a series of meetings which brought statewide attention to the work of the Commission on Skills of the American Workforce and to the importance of addressing school-to-work transition. The first of these meetings was a workshop organized and sponsored by the Texas Higher Education Coordinating Board in October 1991 for individuals throughout Texas who were in Austin to attend a conference in connection with the solicitation of tech prep implementation proposals. Marc Tucker, president of the National Center on Education and the Economy, was featured as its keynote speaker.

In February 1992, a second working group event gave focus to school and work issues. The annual training conference of the regional Quality Work Force Planning Committees in Texas was organized on the theme, "Education and Jobs -- A High Performance Approach." It featured as a keynote speaker Richard Cohon, a member of the Commission on Skills of the American Workforce. In addition, a special preconference workshop was held specifically to educate local officials about the importance of school-to-work transition and to solicit their ideas for resolving school-to-work problems. The ideas generated by this workshop subsequently were compiled and disseminated by staff of the Texas Department of Commerce.

Quality Workforce Planning

In response to educational reform legislation, the Texas Education Agency and the Texas Higher Education Coordinating Board developed a blueprint for restructuring occupational education and training in Texas by approving a master plan for vocational-technical education entitled *Career Opportunities in Texas* (Texas Education Agency, 1990). The master plan emphasized strong academic foundations for all students, awareness of a broad range of career opportunities, and occupationally relevant education. In particular, the master plan called for making vocational-technical training responsive to local labor markets through regional planning. In 1989, Senate Bill 417 in the 71st Texas Legislature established a process for planning vocational-technical education on a regional basis and for identifying priority occupations for training. State Board of Education regulations subsequently have been promulgated to administer the Quality Work Force Planning (QWFP) system.

At the state level, the QWFP system is administered by a tri-agency partnership which includes the Texas Department of Commerce, the Texas Education Agency, and the Texas Higher Education Coordinating Board. As envisioned, the statewide QWFP system would have several components, including the following:

1. *Labor Market Information (LMI) Database System.* This system would use various state/local systems to provide data on emerging occupations. Through contracts with the Texas Department of Commerce, the SOICC has developed computerized data bases and interactive software called Standardized Occupational Components for Regional Analysis and Trends in the Employment System (SOCRATES) to assist regional QWFP committees analyze local labor market dynamics. The Texas Innovation Network (TINS) has developed a methodology for identifying emerging occupations related to new technologies in the workplace. These two systems would form the core of the Texas strategy to ensure that each region understands its local economy and where the jobs are and will be.

2. *Career Occupational Information Database and Career Guidance System.* Through the SOICC, five state agencies are supporting the development of this system to inform students and adults regarding which jobs and career options are promising, what the educational requirements of these jobs and careers are, and where training is offered.

3. *Employment/Training Clearinghouse.* This clearinghouse would maintain a statewide computerized inventory of education and training programs and resources, including community colleges, technical institutes, proprietary schools, and other deliverers.

4. *Basic Skills/Literacy Support System.* Dropouts, illiterates, immigrants, offenders, and other target groups with special needs or problems would be assisted through this system.

5. *Wage Record Follow-Up Tracking System*. This component would track the experience of those persons completing training as they enter the labor market, using unemployment insurance wage record data.

6. *Texas Skills Development Program*. This industry-based system of skills standards and certification would enable education and training institutions in Texas to become more responsive to the needs of business and industry for skilled workers.

7. *Regional Quality Work Force Planning (QWFP) Structure*. By state law, Texas has 24 QWFP regions based on regional labor markets (see figure 1). These regions would provide an integrated occupational/job training system to reduce duplication and eliminate Texas' fragmented approach to training, to implement a market-driven training system responsive to business and industry needs, and to provide career paths and career options leading to success in the workplace.

As of fall 1992, some of these elements, such as the skills development program and the wage record tracking system, were not yet in place. However, a labor market information database has been developed, and the regional QWFP structure was in place statewide by 1991 after three years of pilot projects in nine selected regions (see figure 1).

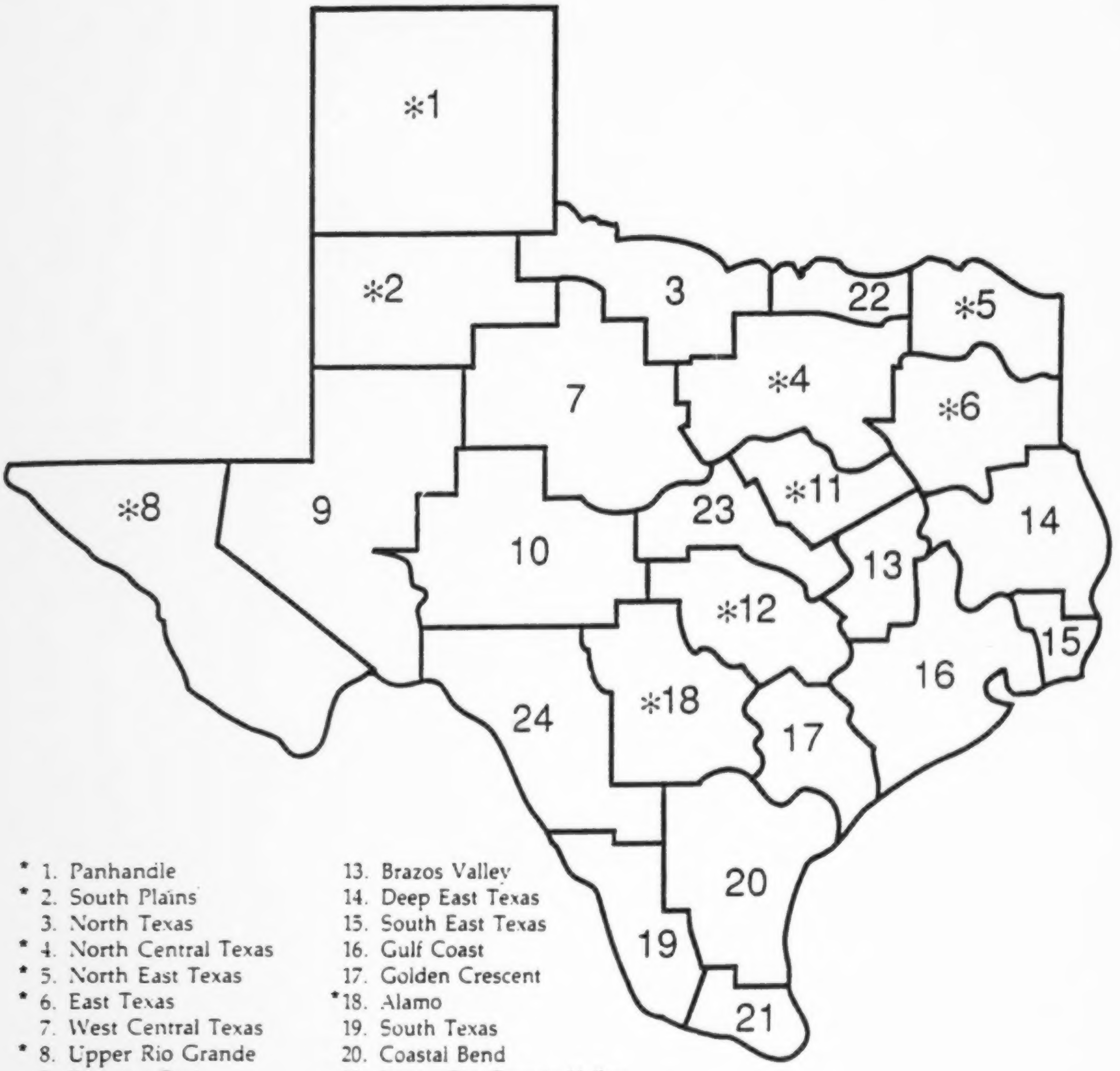
In each of the 24 regions, a QWFP committee has been created. At least half of its members are from industry, including representatives of large and small businesses as well as labor. Remaining members are representatives from a broad spectrum of training deliverers. At the discretion of each regional committee, QWFP activities in that region are administered by any of a variety of entities, including universities, community colleges, private industry councils, and others. Beginning in 1991, the Texas Legislature allocates to each region an annual grant of $70,000 from vocational education funds to help pay for administrative costs.

Every regional QWFP committee has established a regional labor market information system with the SOCRATES software and with data from SOICC and local sources. Using a consistent process, each regional committee has identified key industries and developed a regional list of priority occupations which should serve as a target for training. Each committee also has compiled inventories of education/training programs and identified economic development organizations within its region.

In the Austin area, the QWFP committee is known as the Capital Area Workforce Alliance. Jointly administered by the Rural Capital Area Private Industry Council and Austin Community College, the alliance serves Travis County and nine adjoining counties in the central Texas area, which include 40 independent school districts. The alliance was instrumental in organizing and obtaining state funding for the Capital Area Tech Prep Consortium to implement tech prep programs between Austin Community College and school districts in the region. The alliance serves as a general source of labor market information to its education partners within the region. It has developed an inventory of providers that offer occupational training in the region. The alliance has promoted collaboration among educational entities, including curriculum development projects and a program to develop distance education opportunities jointly undertaken by Southwest Texas State University, the San Marcos Independent School District, the Gary Job Corps Center, and the telephone company in San Marcos.

One of the primary missions of the alliance is to "improve the efficiency and effectiveness of education and training by matching programs to changes in labor demand" (Capital Area Workforce Alliance, 1992, p. 20). Based on analysis of state data sources along with information provided locally, the alliance has targeted occupational priorities in six industrial sectors for 1992-94 (see table 5). Public schools in the region must take this priority listing into account in revising or redirecting existing vocational programs or in initiating new programs.

Figure 1. Quality Work Force Planning (QWFP) Regions in Texas



* 1. Panhandle
* 2. South Plains
3. North Texas
* 4. North Central Texas
* 5. North East Texas
* 6. East Texas
7. West Central Texas
* 8. Upper Rio Grande
9. Permian Basin
10. Concho Valley
*11. Heart of Texas
*12. Capital
13. Brazos Valley
14. Deep East Texas
15. South East Texas
16. Gulf Coast
17. Golden Crescent
*18. Alamo
19. South Texas
20. Coastal Bend
21. Lower Rio Grande Valley
22. Texoma
23. Central Texas
24. Middle Rio Grande

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*Pilot Projects

Table 5. Capital Area Workforce Alliance Priority Occupational Areas: 1992-94

Industry	**Occupation**
Agricultural Services	Crop Protection/Production Specialist
Communications	Information Technology Support Specialist* Network Systems Technician* Telecommunications Technician* Customer Service Representative
Electronics/Electrical	Instrumentation and Electrical Equipment Specialist*
	Electrical Semiconductor Processor
Hotel/Hospitality	(Hotel and) Food Service Manager
Health Services	Chemical Dependency Specialist* Respiratory Therapist Physical Therapist Registered Nurse Licensed Practical Nurse Emergency Medical Technician Medical Lab Technician Home Health Aide
Environmental Services	Hazardous Materials Coordinator*

Source: Capital Area Workforce Alliance, *Quality Work Force Planning: Annual Report* (Round Rock, Texas, August 1992).

*Emerging occupation

Implementation of Tech Prep Programs

Tech prep programs combine the last two years of secondary school with two years in a community college through a nonduplicative sequence of courses to provide technical preparation in engineering technology, applied science, mechanical skills, industrial or practical arts or trades, agriculture, health, and/or business. Tech prep programs lead to a two-year associate degree or certificate under a formal articulation agreement between the secondary and postsecondary institutions. Tech prep students often can earn college credits for courses taken in high school through arrangements for concurrent (dual) credit or credit-in-escrow provisions specified in the articulation agreements. The approach was introduced by Dale Parnell in his book *The Neglected Majority* (1985) and generated numerous pilot "2+2" programs across the country. After several demonstrations showed promise, the approach was funded nationally through the "Carl D. Perkins Vocational and Applied Technology Education Act of 1990" (P.L. 101-392, Title III, Part E) under the name "tech prep" (see chapter 3).

The Perkins Act requires tech prep programs to provide career guidance and assessment for students prior to entering the program, professional development for teachers and counselors, student support services such as transportation and child care, and equal access for special populations. The Perkins Act also emphasizes the integration of academic and applied skills. Beyond such minimum elements, the act requires states to give "special consideration" to tech prep programs that are developed in consultation with industry and labor, address dropout prevention and reentry needs of special populations, and offer effective placement in employment and opportunities to transfer to four-year baccalaureate programs.

Even prior to passage of the Perkins Act in 1990, the Texas Higher Education Coordinating Board had used federal vocational education monies to develop a variety of pilot "2+2" programs. Nine programs were funded, including programs in electronics and in telecommunications developed by Leander High School and Austin Community College.

When federal funding became available under the Perkins Act, Texas decided to use its QWFP regions as the basis for tech prep consortia. In spring 1991, the Coordinating Board awarded planning grants which were available only to consortia of secondary and postsecondary schools within QWFP regions. In fall 1991, a request for proposals was issued asking for five-year plans to implement tech prep programs through the development of consortia within the 24 QWFP regions. Regional tech prep consortia could be organized separately from QWFP committees, but the tech prep consortia were urged to work closely with these committees and to consider the priority occupations identified by the committees.

Texas imposed minimum requirements for tech prep programs that went beyond the federal requirements in several respects. Consortia were asked to propose six-year programs of study beginning in the ninth grade of high school. They were asked to devise programs that integrated workplace and classroom learning experiences and that incorporated college-preparatory general education coursework as well as preparation in critical thinking skills and the basic workplace skills identified by the Secretary's Commission on Achieving Necessary Skills (SCANS, 1991). Also, programs were to be linked to opportunities for advanced technical skills training and/or baccalaureate study.

In the Austin area, the Capital Area Tech Prep Consortium won competitive awards for both a planning grant and an implementation grant to establish tech prep in the ten-county region. Austin Community College serves as the fiscal agent for the consortium, which includes the college and 18 school districts. By September 1992, Austin Community College had negotiated articulation agreements for programs in several occupational clusters, including electronics, office systems, human services and institutional administration, and marketing education and international trade, with several of the school districts, including the Austin Independent School District. These programs were awaiting approval by the Texas Higher Education Coordinating Board.

Student Assessment in Public Education

The evolution of statewide student assessment practices in Texas is moving in directions which should be helpful in promoting the transition from school to work. Specifically, there is a move away from standardized multiple choice tests and toward the development of a portfolio of assessments, including alternative assessment practices such as individual and group projects.

Student assessment has been a subject of considerable attention and activity over the past seven years. In 1985-86, the Texas Education Agency began administering the Texas Educational Assessment of Minimum Skills (TEAMS) tests to students in grades 1, 3, 5, 7, 9, and 11. These tests were assessments of *minimum* skills. The grade 11 TEAMS test was an exit-level test which had to be mastered if a student was to graduate from high school. The test for first graders was eliminated beginning with the 1989-90 school year. The TEAMS criterion-referenced tests expanded and replaced a previous statewide program of student performance, the Texas Assessment of Basic Skills (TABS), which had been in place since 1979 and was administered in grades 3, 5, and 9. Both the TEAMS and TABS assessment programs had been mandated by the Texas Legislature. The TEAMS had been created as a part of the 1984 reform legislation, which also spanned other reform measures aimed at improving student performance and accountability. These measures included teacher competency testing and the "no pass, no play" provisions forbidding students who failed a course from engaging in extracurricular activities, including school sports, during the subsequent grading period.

In addition, a 1987 state law required students entering any Texas public college, university, or technical institute in fall 1989 or later to take Texas Academic Skills Program (TASP) tests designed to measure proficiency in the basic skills of reading, mathematics, and writing considered essential to success in college. TASP tests are taken after admission to college so that results cannot be a factor in admission decisions. Students who do not take the tests prior to completing their first nine hours of postsecondary coursework will not be permitted to re-enroll, nor will students who fail the tests be allowed to enroll in upper-division courses.

In October 1990, the State of Texas began administering a new test to measure a student's reading, writing, and mathematical skills -- the Texas Assessment of Academic Skills (TAAS). The TAAS is designed to assess more than minimum skills. Similar to the TEAMS, the TAAS is administered to students in grades 3, 5, 7, 9 and 11 (exit-level).

In 1991, the Texas Legislature established the Committee on Student Learning (House Bill 2885, 72nd Texas Legislature) as a permanent committee on student assessment reporting directly to the Legislative Education Board. It is charged with responsibility for the development of a statewide performance-based assessment program for elementary and secondary students that provides criteria for a Certificate of Initial Mastery. The State Board of Education must consider the recommendations of the Committee on Student Learning before it makes any decisions on statewide assessment programs.

Meeting initially in early 1992, the Committee on Student Learning was occupied with assimilating orientation briefings and background information during its first nine months of operation. The committee has decided to recommend comprehensive assessments at grades four, eight, and ten, with mastery of the grade ten assessment serving as a condition for exiting from high school with a diploma. Focusing on these three grades, Texas is in line with developments nationally and in other states. To develop practical performance assessments, Texas also is a collaborating state in the New Standards Project, administered by the National Center on Education and the Economy and the Learning Research and Development Center at the University of Pittsburgh. An emphasis of the New Standards Project is to develop new performance-based projects that require students to apply knowledge and academic principles. The ultimate outcome will be a series of individual and group project assessments that can be used with reliability and validity across participating states.

These developments are important for school-to-work transition in two ways. First, the new assessments offer hope for improving instruction in the foundation skills that students carry into the workplace. Second, the performance-based project approach to assessment opens possibilities of using workplace applications and engaging industry representatives in the process of student assessment.

State Framework for Local School-To-Work Transition

Texas is better positioned than local school districts to implement some of the key elements of a systematic approach to school-to-work transition. Four areas in which state action can create a framework to facilitate and encourage local action are the establishment of an information base to improve school-to-work transition, the development of a Certificate of Initial Mastery to document skills needed for workplace entry, the creation of a statewide industry infrastructure to support and encourage local school-to-work initiatives, and the provision of statewide training and technical assistance for localities.

Building an Information Base

Texas needs to develop and disseminate better information on the efficacy of postsecondary education and training options. This endeavor would take best advantage of diverse and pluralistic training systems in Texas by putting better information into the hands of students and learners, parents, teachers, and guidance counselors to enable them to make informed choices from the options available. This system could be established to apply to any public or private training deliverer that purports to qualify learners for entry into an occupation, occupational cluster, or industry. Information would be required from any training entity receiving public monies in direct assistance or through loans and grants to its students. Others would be welcome to submit information on a voluntary basis.

A profile of each deliverer of postsecondary education and training could be collected once and only revised when the information changes. Such a profile would include background on the institution, description of the training, and information on costs. Data on performance could be collected annually and displayed as a three-year moving average. Performance indicators should include completion rates, employment rates of completers, wages at job entry, performances of graduates on skill assessment/competency measures, employment and earnings experiences through time (e.g., using unemployment insurance administrative records), and measures of satisfaction of trainees/students and employers. The information compiled could be accessed by users in every high school, postsecondary institution, public library, and Texas Employment Commission office.

An information base on the efficacy of postsecondary education and training options should be developed through the regional QWFP committees. The committees already have compiled inventories of the postsecondary education and training options available in their respective regions, but as yet no indicators of the quality of options has been compiled. Including this information would bring greater meaning to the word "quality" in QWFP activity.

Such an information system could also be designed to provide feedback on the success of school-to-work transition endeavors over time. Following the lead of Kentucky, Texas could make high schools accountable for placing their students successfully into postsecondary education or training or into jobs upon graduation, with the information system designed to document performance against this objective.

Developing a Certificate of Initial Mastery

As described previously, the state's approach to student assessment is in transition. To improve school-to-work transition, the state should move to establish a cumulative assessment process leading to the Certificate of Initial Mastery, as the Texas Legislature has recommended. This certificate would certify that the student has the foundation skills and personal qualities to enter the workforce. To gain employer confidence and assure that the certificate is used in hiring decisions, it should be developed in collaboration with industry. The certificate could become much more meaningful than a high school transcript in enhancing employment opportunities.

Building an Industry Infrastructure

One of the most helpful actions that the state could take is to organize employers on an industrywide basis to work with schools on school-to-work transition issues. One area in which industry-level activities are called for is the development of skills standards. Working in collaboration with national initiatives to develop these standards and to assess and certify occupational skills, Texas could convene industry groups to clarify what skills they need in employees. Being explicit about the skills needed would help schools better target their education and training efforts.

Organizing industry groups is also important to foster the expansion of work-based learning opportunities for youths. A campaign is needed to inform industry about the importance of revising employment practices to give greater attention to hiring and training young workers. Peers are in the best position to make these arguments. In this regard, finding ways to communicate to employers what their competitors are doing in other nations could be an effective tactic. The state could promote the use of high quality program models offering students internships, cooperative education, and/or youth apprenticeships. Texas could also provide every student enrolled in a tech prep program with opportunities for work-based learning. Developing statewide institutions organized by industry likewise could facilitate the establishment of academies and teacher internships.

Providing Training and Technical Assistance to Localities

Texas could develop a statewide clearinghouse to offer school-to-work transition information, technical assistance, and training to local areas. This unit would monitor promising developments nationally and in other states on school-to-work transition, including work-based learning, as well as share information among the state's 24 QWFP regions. In addition to providing training and assistance to local school staff and industry representatives, this unit would foster the development of peer networks among practitioners who are operating school-to-work projects.

Chapter 5. Education and Employment in Austin

Austin Economy

Unlike many areas of the nation during the early 1990s, Austin has enjoyed a growing economy, albeit a slowly expanding one. In 1991, for example, the Austin Metropolitan Statistical Area (MSA) -- composed of Travis, Hays, and Williamson counties -- enjoyed the second lowest annual unemployment rate among 28 MSAs across the state. For the year, Austin's rate was 4.7 percent, compared with 6.6 percent statewide (Cruz, Telephone interview, September 16, 1992).

Unemployment rates in Austin's poor and minority neighborhoods are about twice the average unemployment rates for the community, however, and are becoming significantly worse over time. In 1980, for example, unemployment rates in 14 relatively poor census tracts in Austin averaged 7.2 percent, compared with the Travis County average of 3.7 percent. By 1990, unemployment in those tracts had risen to 15.4 percent, compared with 6.3 percent for the county as a whole (The Austin Project, 1992, p. 46). Further, unemployment rates among youths are much higher than adult unemployment rates.

Although there appear to be an adequate number of entry-level jobs in Austin, many lack career growth potential, and the competition for those with such potential is severe. A 1985 study by the Austin/Travis County Private Industry Council (PIC) identified over 1,750 entry-level jobs requiring high school graduation or less (1984, p. 6). Recent research conducted for the PIC found that over 800 entry-level jobs were available in 1992 from the hospitality industry alone (Brokaw, Correspondence, May 27, 1992).

The abundance of job seekers in Austin with some work experience and/or college training generates considerable competition for desirable entry-level jobs. Among the nation's 50 largest cities, Austin ranks as one of the most highly educated communities, with 31 percent of its adult population having completed 16 or more years of education. In fall 1991, total college enrollments equalled one-seventh of the adults in the three-county Austin MSA. Also, many student spouses are available for work in the Austin economy. Since employers tend to prefer workers with some job experience and/or college preparation, new high school graduates are often left with jobs that are no better than those obtained by school dropouts. The lack of immediate economic rewards for high school graduates may explain, in part, the limited progress made in reducing the dropout rate in the Austin Independent School District (AISD).

Demand occupations are those in which there is strong statistical evidence of a steadily increasing need for workers. About two-thirds of the 45 demand occupations identified by the Austin/Travis County PIC in spring 1992 required education or training beyond high school. Relatively few of these occupations, however, required college graduates with baccalaureate degrees (Calculated from Austin/Travis County PIC, 1992, pp. 32-52).

Austin Independent School District

The Austin Independent School District is an urban, central-city school district with 67,992 students in October 1991. It is a growing district serving increasing proportions of minority students over time. In October 1991, 43.0 percent of the students were Anglo, 35.5 percent Hispanic, 19.2 percent African American, 2.0 percent Asian American, and 0.3 percent American Indian (AISD, 1991e, section I, p. 23). A total of 6,489 students were identified as limited English proficient.

There are 90 schools in AISD, including 10 high schools, 14 middle schools, and 66 elementary schools. Effective September 1992, the district is organized into vertical teams, a structure that puts together under an AISD assistant superintendent two high schools with the middle schools and elementary schools which feed into them.

In terms of achievement test scores, Austin ISD students generally perform better than students nationally and better than students from other major urban districts across Texas. AISD students generally score at or above the 50th percentile (national average) on national achievement tests such as the Iowa Test of Basic Skills, given to students in first through eighth grades, and the Iowa Tests of Achievement and Proficiency, which are given in high school. On the Texas Assessment of Academic Skills (TAAS) exit-level tests, the average performance of Austin students normally surpasses that of students from other urban districts across Texas. In comparison to statewide averages, however, AISD's TAAS mastery percentages across all grades (not just exit-level) in 1990-91 were higher in only five areas, the same in four, and lower in eleven. Further, a campus-by-campus analysis of test scores shows great variation among AISD schools (AISD, 1991e, section III, pp. 28-31).

Like other major urban school districts, AISD experiences high dropout rates. Currently, about 24 percent of students entering AISD high schools drop out before graduation. The dropout rate has declined slightly during the past four years from 27.7 percent in the class of 1987 to 26.7 percent in the class of 1989 and 24.4 percent in the class of 1991 (AISD, 1991e, section I, p. 27). However, such improvements may be due to better recordkeeping, since Austin ISD now receives more complete follow-up information on students leaving its schools.

Except for Asian Americans, the dropout rate among minority students is significantly higher than for Anglo students. The dropout rates through high school of students entering ninth grade in 1987-88 were 28 percent for African Americans, 31 percent for native Americans, and 33 percent for Hispanic students, compared with 18 percent for Anglos and 12 percent for Asian Americans (AISD, 1991c). Moreover, dropout rates for Anglos in Austin are declining, whereas they are rising for Hispanics and African Americans. In addition, many students drop out of school prior to entering high school. Dropout rates in middle school, for example, are especially high among Hispanics and certain subgroups of Asian Americans.

AISD college-bound students consistently surpass their peers in Texas and nationwide in Scholastic Aptitude Test (SAT) scores. From 40 percent to 50 percent of AISD seniors take the SAT test each year for college admission; in 1989, AISD students averaged 27 points above the national average and 53 points above the state average (AISD, 1991e, section I, p. 32). Forty AISD high school seniors were chosen as National Merit Scholarship finalists in 1990. In 1991, the district produced 25 National Merit Scholarship finalists -- about twice the number expected from a district of Austin's size (AISD, 1991e, section I, p. 33).

An estimated 53 percent of the students entering AISD high schools eventually graduate and continue with postsecondary schooling (see table 6). In high schools with more than 50 percent minority student enrollments, about 70 percent of the graduates are reported to be college bound, which is about the same as for other Austin high schools (AISD, 1991e). These high schools, however, have higher dropout rates. Moreover, such estimates of college bound rates may not be reliable, according to Austin ISD. Students are counted as continuing with postsecondary schooling if they report to their high school registrar that they are college bound or if the registrar has sent a transcript to one or more higher education institutions prior to the end of the senior school year.

No data are available regarding college completion rates by Austin high school graduates who enter college. If Austin follows the national pattern, however, only 19 percent of the graduates who enter two-year colleges shortly after completing high school will have a certificate or associate degree in hand four years later (U.S. Department of Education, 1989, p. xvii). Likewise, only a quarter of public university students graduate within four-and-one-half years.

College completion rates in Texas may be better than the national average. A study by the Texas Higher Education Coordinating Board of students enrolling in a Texas public college or university in fall 1985 found that 46.9 percent had obtained at least a baccalaureate degree six years later, but only 25.5 percent of the African Americans and 34.9 percent of the Hispanics had such a degree (Gardner, Correspondence, August 3, 1992). Extrapolating from these rates, just over one of three AISD graduates (or only one of five or six AISD high school entrants) completes an associate or baccalaureate degree directly after high school.

Table 6

Flow of Students through Austin High Schools:
Students Entering Ninth Grade in 1987

	Number	Percent
Total Students in Cohort	4,000	100%
Enter Four-Year Colleges	1,400	35%
Enter Two-Year Colleges	720	18%
Graduate But Do Not Enter College	920	23%
Dropouts	960	24%

Source: Calculated from data in AISD, *Profile: The Austin Public Schools*, December 1991, and AISD, *1991 Former Student Survey Results*, December 1991. Austin, Texas: AISD.

About 23 percent of the students entering AISD high schools graduate and enter the workforce directly without enrolling in further education. Such students numbered about 860 in 1991. Most of these find their own jobs with little help from formal job exchange services. Not a single student responding to a fall 1991 survey of former AISD students reported obtaining a job through the Texas Employment Commission (TEC) (AISD, 1991d). In part, this is because the computerized job matching system used by TEC does not well serve workers with little or no job experience. Most take jobs which they report are not related to their high school education or do not provide any training. Only 5 percent participate in self-identified apprenticeship programs, and only 21 percent say they are receiving on-the-job training. Seventy-four percent of former students surveyed report that they are in jobs for which they are either fully qualified or overqualified (AISD, 1991d).

Austin high school students often see little connection between school and their lives beyond school. Many average students appear to be insufficiently engaged in their schoolwork. Informal discussions with AISD teachers indicate that while the top college bound quartile of students is well motivated, the bottom quartile is apathetic (or worse), and many students in the middle two quartiles seem to be just going through the motions.

A fall 1991 survey of AISD high school students found that a major reason many students reported being unmotivated is because they found school not relevant (AISD, 1991b). In response to the question "Students at my school would be more motivated to achieve/stay in school if (choose all that apply)," the answers were:

1.	class content was more relevant to "real life"	46%
2.	schools had more flexible hours so that students could work at their own pace	43%

3.	more rewards and recognition were available for academic work	37%
4.	classes trained students for real jobs	36%
5.	counselors had more time to talk to students about personal issues	31%
6.	each student had a caring faculty advisor	25%
7.	there were more school support groups for students to discuss personal problems	24%
8.	parents were more involved	23%
9.	personal support services such as health services and child care were offered on campus	20%
10.	classes were graded pass/fail	13%
11.	no changes are needed; students are motivated to achieve and stay in school	8%
12.	students had to learn more in each class	8%

In the same survey, in response to the question, "If you know students who are seriously considering dropping out of school or who have already dropped out, why do you think they are dropping out?" more than half of the students answered "Lack of interest in school" (AISD, 1991b).

The absence of a clear link between what is being taught and what skills are needed to get a good job may be partially responsible for this attitude among average students. Many students in the early years of high school just focus on graduation from high school and do not realize that avoiding hard courses may foreclose various career opportunities later on. Equally clear, many high school seniors lack career awareness and do not have realistic post-high school plans. In fall 1991, an industry representative visiting several AISD high schools found that nearly all seniors expected to go to college and relatively few were interested in discussing options in the workforce. Several months later, reality had begun to dawn on many of the students as they realized that college would be out of reach (Wright, Interview, June 9, 1992).

The experience of job placement personnel outside AISD who are working with AISD students and recent graduates indicates that these youths need an incredible amount of counseling. Parents are apparently unable to provide adequate help, and school counselors often are swamped with urgent matters.

Overall, the Austin ISD is a large urban district that does a reasonably good job of preparing a portion of its youth for college, but it does not appear to serve well the four of five students entering Austin high schools who will not complete college directly after high school. Key problems are that many students lack career awareness and do not view school and work as related. Preparation of college bound youths with respect to career awareness and expectations also could be improved.

Collaborative Programs between Schools and the Community

Austin Adopt-A-School Program

Administered jointly by the Greater Austin Chamber of Commerce and the Austin Independent School District, the Austin Adopt-A-School Program is one of the largest programs of its type in the country. Begun in 1983 with 12 adopters in 25 schools, the program has grown to include every elementary, middle/junior high, and high school in Austin as well as special programs, with over 1,500 adopters providing assistance to the 130 AISD schools and school programs that participate. In June 1991, President Bush named the Austin program a "Daily Point of Light" to acknowledge the effort that has gone into its development, sustenance, and growth (Austin Adopt-A-School Program, 1991c, p. 1). During 1991-92, Austin Adopt-A-School partnerships involved nearly 10,000 individuals who gave over 147,000 volunteer hours; cash and in-kind contributions for the year totaled $3,330,682. The estimated cumulative value of total program contributions from 1983 through 1992 is $13,533,966 ("Austin Adopt-A-School -- Making a Difference," 1992).

Austin adopters provide one or more of nine types of assistance to the schools: attendance incentives, dropout prevention, mentoring, academic enrichment, cultural enrichment, improvement of facilities, parent training, staff recognition, and teacher assistance (Austin Adopt-A-School Program, 1991b). Neither career awareness nor school-to-work transition are specifically included among these categories.

Each Austin Adopt-A-School Program adopter chooses school activities with which it wishes to become involved. There is no pressure for any specific type of involvement. Each adopting organization assesses its areas of interest and resources. The level of participation ranges from making a financial contribution to Booster Club projects of cultural, personal, intellectual, and familial enrichment to providing mentors, training programs, and material donations to several schools.

When an employer adopts a school, the adopter's responsibility to the program occurs at three different levels: chief executive officer, coordinator, and employee volunteers (Austin Adopt-A-School Program, 1991a, pp. 39-41). The chief executive officer is the facilitator for the program. She/he permits and encourages the employees to volunteer in the partnership effort and appoints a company Adopt-A-School coordinator. The coordinator is the official connection between the employer and the school, keeping the company informed of program activities and organizing and monitoring the employee volunteers. The coordinator also is responsible for publicity of the program, both within the company, through volunteer recognition, and outside the company, through media involvement when relevant. The volunteers are the backbone of the adopter-adoptee relationship. Their participation provides the majority of personal contact with the school and its students, through mentoring, periodic class instruction, and training sessions.

The school's responsibilities to the program occur at four levels: the school principal, the school coordinator, the teachers, and the parent organization (Austin Adopt-A-School Program, 1991a, pp. 17-19). The principal determines the areas in which the school can profit the most from employer participation, strongly encourages support of the partnerships, and works collaboratively with the adopters. The school coordinator keeps in contact with the adoptor's coordinator, supports the volunteers in the school, and is responsible for the day-to-day organization of the program. The role of the teachers is to assess how employee volunteers can best be used in their classrooms and to encourage their participation. Finally, the school's parent organization also should encourage its Adopt-A-School employer partners and involve them, when possible, in the organization's activities.

The largest barrier to the success of the Adopt-A-School Program has been a lack of mutual understanding of the interaction between the schools and the adopters (Reubush, Interview, December 13, 1991). Schools that are not secure in their relationship with their adopter tend not to request substantive assistance. Many of the initial adopter relationships involved pizza parties for the students and other such nonessential, though pleasant, material aid. Over time, however, many Adopt-A-School relationships evolve into more significant endeavors. According to the Greater Austin Chamber of Commerce, for example, a quarter of all fall 1991 Adopt-A-School partnerships involved mentoring arrangements.

With the further development of the Adopt-A-School Program and the continuing growth of mutual trust and understanding, the scope of the program has expanded. The most successful partnerships have resulted when a supportive principal is assertive in requesting assistance in meeting the school's specific needs and when adopters are thoroughly aware of both the benefits and limitations of the resources and support they can give. Highland Park Elementary School is one of the most successful local collaborations. Located in one of Austin's more affluent areas, the school has taken considerable initiative in attaining its goals. With the help of its adopters, the school raised over $70,000 to start a computer lab (Reubush, Interview, December 13, 1991). Instead of asking the adopters for money, the school asked that they share their resources through fund-raising activities.

Two notable examples of company initiatives to support the professional development of teachers are the Fisher Controls program at Reagan High School and the Motorola Teachers in Industry program (Greater Austin Chamber of Commerce and Austin Independent School District, 1991, p. 1). Fisher Controls has started a continuing education grant program that allocates $15,000 annually to help teachers and counselors pursue further education or training relating to their field of specialization, general education issues, or teaching techniques (Reubush, Interview, December 13, 1991). The grants are awarded competitively with two conditions -- participants must give presentations to share their new knowledge gained with their fellow teachers, and they must remain at Reagan High School for at least two years after they receive the grant. If they leave before the two-year period is over, they must repay the grant money spent on them. The idea behind these conditions is to ensure that the school retains its staff members that have the best training and the most initiative for change and improvement (Reubush, Interview, December 13, 1991).

Teachers in Industry is a summer internship program administered by the Motorola Corporation for teachers at the company's five adopted schools: the Alternative Learning Center, Crockett High School, Highland Park Elementary School, LBJ High School, and Pearce Middle School. Motorola selects teachers through a competitive application process for a two-month summer assignment in the company, paying $2,000 per month. The company funds the program through money set aside to cover for workers on vacation over the summer. Instead of hiring temporary or part-time workers, the company selects AISD teachers to fill in. The teachers either rotate through Motorola departments or remain in a specific department. Some teacher interns work at regular jobs on a vacation relief basis; others have conducted special assignments, such as evaluating Motorola's training program and basic competency exams. Both Motorola and the participating teachers have been pleased with the program. Teachers benefit because they can work with state-of-the-art equipment or materials in their area of specialization or simply get a fresh perspective on the competition and demands their students face once they graduate from high school (Reubush, Interview, December 13, 1991).

The Adopt-A-School Program offers great potential as a resource to improve school-to-work transition in Austin. Businesses can help bring the workplace to the students by providing internships to teachers and students, developing real world application exercises to be integrated into the curriculum, and participating in other activities to improve school-to-work transition. To date, however, these have not been priority areas for Austin's Adopt-A-School Program.

Business-Education Executive Partnership Program

A special initiative of Austin's Adopt-A-School Program is the Business-Education Executive Partnership Program (BEEPP). Through BEEPP, 25 AISD principals and central administrators are matched one-on-one with 25 mid- to upper-level business executives. The participants meet as a group four times a year to share perspectives on relevant management and educational issues, e.g., Total Quality Control (TQC). In addition, each paired administrator and executive also try to schedule four one-on-one meetings per year (Dochen, Interview, February 6, 1992). This program enables business people to gain knowledge of the Austin educational system, while the AISD administrators are able to understand better the challenges which face the graduates of their schools in the workplace. Especially important is the exchange among people who are facing similar challenges, albeit in different surroundings (Dochen, Interview, February 6, 1992). By increasing its participants to include linkages between counselors and human resource directors, BEEPP could strengthen its direct link with each campus to address its specific problems and strengthen employer-school understanding.

Employers Support Parenting (ESP)

One of the newest initiatives of the Austin Adopt-A-School Program is the Employers Support Parenting (ESP) program. Originated by Leadership Austin participants, this program is based on the realization that parental involvement is an important predictor of student academic success. Piloted by 14 businesses during the 1991-92 school year, ESP encourages businesses to support their employee parents in becoming more involved in their own children's education. ESP provides numerous suggestions for strengthening parent involvement, such as leave for school conferences and events, organizing workplace visits for employees' children, and forming a tutoring network of employees and their children (Employers Support Parenting, 1992).

Gettin' Down to Business

Gettin' Down to Business, also started by a group of participants in the Leadership Austin program, seeks to motivate at-risk middle school students by connecting them with an Austin business through a worksite visit. Initially piloted at Lamar Middle School during the 1989-90 school year, the program met with such a warm response from participating students, school staff, and businesses that it has been continued each year since then. Through the efforts of the School-to-Work Transition Committee of the Greater Austin Chamber of Commerce, the program was expanded to O'Henry and Dobie Middle Schools in 1991-92. The program serves seventh and eighth grade students who have been identified as at-risk by a counselor, teacher, or principal of a participating middle school. Once identified, students are eligible to participate both years.

Gettin' Down to Business strives to inform children about future career and employment opportunities available through education, thereby giving them greater incentive to continue in school. Once a year, the program arranges worksite visits to participating employers and exposes the children to the diversity of employees in these organizations -- everyone from the custodial staff to the president of the company. Employees serve as hosts and tour guides. The school district encourages the businesses to have employees who are minorities participate as tour guides, since a large portion of the children are Hispanic or African American.

The 1991-92 program was redesigned to be more personalized and effective. A planning committee was established for each school, with emphasis placed on increasing, improving, and extending the contacts between the students and businesses. During spring 1992, the students met with the employer representatives three times. At the initial meeting, the representatives came to the schools to become acquainted with the students in the program and answer questions about their places of work. A few days later, the students visited the worksites, learning more about the types of work performed, the availability of jobs, and the requirements for employment. AISD staff members familiar to the students accompanied them on the visits to help the youngsters feel comfortable. A follow-up session was held in the schools to elicit feedback from the students. Methods were explored to encourage continued contact between students and employees -- especially over the summer between middle school and high school, a difficult transition period for many students. Employer participants in spring 1992 included IBM, 3M, and the State Highways Division of the Texas Department of Transportation.

In the 1992-93 school year, Gettin' Down to Business is being expanded to serve eight middle schools in Austin ISD and a middle school in the Del Valle ISD. The program expects to serve approximately 450 students.

High Expectations

In May 1989, after nearly two years of negotiation, Austin Interfaith, the Austin Area Research Organization, the Austin Independent School District, and the Greater Austin Chamber of Commerce signed an agreement called the Shechem Compact. The objectives of the compact were to increase parental involvement in education and create incentives for students to graduate from high school. High Expectations, an initiative of the compact, was financed during its first year (1991-92) by the Austin Area Research Organization and now is administered and funded by the chamber (Greater Austin Chamber of Commerce, 1991).

High Expectations aims to provide high school graduates without immediate plans for postsecondary education or training an opportunity for meaningful employment upon graduation as an incentive for achievement in high school. The program promises preferential job interviews for career track jobs paying at least $1 per hour over minimum wage to graduates of participating AISD high schools who maintain 95 percent or greater attendance and a 2.5 cumulative grade point average (GPA) in their junior and senior years while enrolled in the program. In addition, participating students must attend monthly luncheon enrichment seminars and/or pre-employment skills workshops.

Before students are enrolled in the program, they and their parents are required to sign a contract committing them to meet the program's requirements. Students go through a competitive process when applying and interviewing for jobs, and High Expectations workshops help to prepare them to compete and to meet job qualifications. Each High Expectations school commits to provide a contact person to work with the High Expectations program staff; arrange presentations of the High Expectations program to the school staff and student body; provide an opportunity for program staff to discuss program objectives with teachers and counselors; provide space for program staff to talk one-on-one with students; provide an opportunity for students to attend workshops; and provide attendance and GPA records of participating students to program staff every six weeks. Employers participating in the program commit to provide full-time and part-time entry-level job opportunities; commit to provide on-the-job mentors for the students hired as employees; commit that these jobs will have career potential and an opportunity for further training; and commit to work directly with chamber staff to monitor the progress of student employees and evaluate the effectiveness of the High Expectations program. Typically, the job opportunities pay at least $1 per hour over minimum wage, although some employers start these students at minimum wage with the understanding that wages would be raised after a probationary period (Wright, Interview, April 3, 1992).

High Expectations is designed to benefit all participants -- students, schools, and employers. Students develop increased motivation resulting in improved achievement and attendance, higher self-esteem, higher graduation rates, and improved personal skills in preparation for the world of work in either the public or private sector. Student achievement is rewarded with job opportunities which offer a promising future. Schools benefit from the assistance of the employer community in motivating students to improve student performance and gain satisfaction from providing an opportunity for students to succeed after graduation. Employers are making an investment in their future employees and consumers. Through the program, employers gain an identified source of employee candidates who have demonstrated their willingness to work and achieve by their consistent classroom attendance and solid grades; improved productivity; personal satisfaction from giving a high school graduate a chance for a career; and the benefits of participation in a communitywide effort to employ Austin's youth.

In its first year (1991-92), the High Expectations program was piloted in four AISD high schools: Travis, Reagan, Crockett, and Austin. Eight monthly luncheon seminars for student participants were held and featured community volunteers making presentations on goal-setting, self-assessment, preparing resumes, interviewing for jobs, and the Austin labor market. Most presentations were in the form of a talk or lecture, followed by discussion. Because students gave up their lunch hour to attend the seminars, free pizza was served, which provided an incentive for students to attend.

Although 214 students initially enrolled in the program in fall 1991, only 131 (61 percent) were still participating by June and only 80 of these students (37 percent of the initial enrollees) met the GPA and attendance criteria to maintain their eligibility in the program. By the end of August 1992, 20 of the 31 June 1992 graduates who had maintained their eligibility were employed; 17 juniors also obtained summer jobs through the program. However, two students who obtained jobs were fired shortly thereafter, two others never showed up for work, and one quit after working only three days (Austin Area Research Organization, Inc., 1992, p. 2).

Nevertheless, a great deal was accomplished by the High Expectations program in its first year of operation, and much has been learned. The program offers potential as a vehicle for communication between schools and employers. As suggested by the experience of the five students who obtained jobs but lost them, schools must stress that good attitude and behavioral traits are linked to success in the workplace. A high school diploma with a 2.5 GPA does not necessarily equate with entry-level skills sought by employers. The pilot also served as a reality check for both schools and employers; several graduates with good grades failed basic skills tests given by employers. Moreover, employers have been displeased with the willingness of the High Expectations schools to compromise program standards. For example, most schools allow students to make up as many as 20 days of absences in Saturday sessions that include no structured learning or assignments. Students are required to bring their own work to these study sessions. Experiences with similar programs in other cities suggests that standards and requirements should not be compromised. It is essential that Austin students get the same message in High Expectations that they will ultimately receive in the workplace -- that their success will rest on their performance. Because many school staff seek to prevent students from dropping out, there are strong systemic incentives for relaxing standards. Schools and employers together must support students to reach high standards and address the issues that weaken the High Expectations program.

Other problems encountered by the High Expectations program during the past year included declining attendance at workshops, students' inability to meet grade and attendance requirements, and overall lack of enthusiasm for the program from teachers, students, and parents. At a job fair held in April 1992, for example, fewer than one-fifth of the eligible invited students attended, while 100 percent of the businesses participated.

With continued chamber support and the active involvement of Austin's business and civic communities, improvements in the program can be implemented. First, greater teacher awareness of the program is needed. Teachers have the most contact with students and should have enough knowledge of the program to answer questions from students or parents or to direct them to the proper resource. An inservice training session for teachers before the students receive information may help. Also, teachers should be provided the name and telephone number of a person to contact if questions arise after the students receive information. Specifically, a contact/counselor/sponsor for the High Expectations program needs to be in place on each campus as a direct resource for the students, teachers, and parents.

Second, the luncheon workshops should become more attractive and participatory. Students must understand and desire the benefits given them through the workshops. They should be informed about the career awareness and development resources available in the community, be given job and personality aptitude tests to assess their interests, be provided leadership opportunities and research assignments, and be encouraged to bond with the other students by meeting more frequently and engaging in small discussion groups.

Project A+

Project A+ was established in 1989 as a partnership between IBM Corporation and the Austin Independent School District. IBM Corporation, as a member of the Business Roundtable, made a commitment to the development of a world-class school system by the year 2000 and selected Austin, Texas, as its project site. Community education and business leaders organized to plan for a fundamental transformation of the Austin Independent School District within ten years. In 1991, Project A+ evolved from a partnership between AISD and IBM into the A+ Coalition partnership between AISD and the entire Austin community.

At its formation in spring 1989, Project A+ organized momentum teams to address the specific objectives of curriculum revision and development, dropout prevention, educational technology, parental involvement, school-based improvement, and the development of a vision and a long-term strategic plan for AISD. The Curriculum Momentum Team produced a "Portrait of Graduates of the 21st Century" in its report, *Children of Promise: Educating for the Future*, identifying the general knowledge, skills, and experiences Austin high school graduates will need in the 21st century to participate successfully in society (Project A+, 1991, p. 6).

Beyond its efforts to encourage strategic planning in AISD, Project A+ has achieved several notable accomplishments (Lehman, Presentation, April 24, 1992). First, a parent training program was introduced in AISD by the Dropout Prevention Momentum Team under initial funding from the Southwest Area Council of the Greater Austin Chamber of Commerce. This program is designed to show parents how families can help children succeed in school and beyond. As of April 1992, more than 200 volunteers had been prepared as trainers, and the program was established in 52 of Austin's 65 elementary schools, four outlying school districts, and five area businesses. Second, four Austin elementary schools were equipped as educational technology demonstration schools with the goal of reducing the number of students overage for their grade levels and the number of underachieving students by 50 percent within three years. Over 1,000 computers and supplemental media teaching aids were donated to these schools by IBM, 3M, and Apple Corporation. Teaching staffs and parents have undergone extensive training to ensure that resources will be used optimally. Intensive academic summer programs target below grade level and underachieving students. Third, as of the 1992-93 school year, ten Austin elementary schools had implemented Henry Levin's Accelerated Education Program, an initiative that uses a curriculum enrichment strategy, not a remedial one, to raise the performance level of at-risk youth. Fourth, Project A+ led the district into site-based management, a reorganization of schools that decentralizes decisionmaking to the campus level. The Empowerment Momentum Team conducted a series of workshops to elaborate the concepts of site-based management and developed a plan for the implementation of site-based management for empowered teachers and administrators. During 1991-92, 16 schools served as demonstration sites for school-based improvement, the district's pilot version of site-based management (National Alliance of Business, 1991). At the end of the 1991-92 school year, facing a state mandate for site-based management, Austin ISD expanded its school-based improvement program districtwide. The A+ Project's Empowerment Momentum Team also led groups of parents, teachers, and principals to define "core values," which were subsequently adopted by the AISD trustees as the basis for the district's focus and accountability. These core values are respect for the individual, commitment to excellence, collaborative involvement, and equity.

Assisting AISD in the development of a strategic plan, the first for the district, was the major focus of Project A+ during 1992. Objectives established by Austin school district and community leaders through the strategic plan were as follows (AISD, 1992, p. 7):

1. Every student will function at his or her optimum level of achievement and progress successfully through the system.

2. All students will function successfully at or above international standards.

3. One hundred percent of students who enter AISD will graduate.

4. After exiting AISD, all individuals will be able to perform successfully at their next endeavor.

5. AISD will upgrade the quality of course content and effectiveness of instruction.

In spring 1992, the A+ Coalition organized a proposal for "Break the Mold" schools in Austin and submitted it to the New American Schools Development Corporation. The proposal aimed to "build a comprehensive learning community through an innovative design based on a systemic, community-wide approach to learning" (A+ Coalition Design Team, 1992, p. 1). The AISD board of trustees, district administrators, and numerous local government, state government, business, higher education, and parent organization leaders pledged their support to develop a school system which is bold in concept and design. The proposed model's community approach to learning is consistent with the AISD strategic plan. In several respects, it also facilitates school-to-work transition and connections.

Under the A+ Coalition proposals, schools would consist of clusters of learning core groups, with students and teachers working together at least two years as a community of learners in order to build a sense of belonging for all. The instructional environment would shift from one of teaching to one of learning and knowledge-building, with teachers employing diverse learning strategies to ensure student mastery. The curriculum would be interdisciplinary, organized by themes relevant to real-life problems. Learning satellites in the community would focus on related disciplines and make the entire community a classroom. Using satellites (i.e., collections of community human, institutional, and material resources which are organized by occupational areas), students could develop their individual strengths and interests through advanced courses, internships, apprenticeships, projects, and community service. The core facilities and satellites would, in turn, use advanced technologies to deliver high-content curriculum and facilitate interaction among students and larger communities in constructing knowledge. Assessment would be outcome-driven, performance-based, and reflective of world-class content. Accountability and reward systems for student achievement would be developed and assigned to teachers, administrators, and the community. Flexibility would be infused in the system to enable educators and administrators to do more with less. Finally, the community would support the learning environment by improving local services so every child would start school every day ready to learn (A+ Coalition Design Team, 1992).

The proposal requested funding from the New American Schools Development Corporation for school district and community supporters to begin immediately the advanced design and planning activities for model implementation. The model was to be implemented initially in one high school, next in the two middle schools from that high school's feeder system, and finally in the elementary schools which feed these two middle schools. Although the New American Schools Development Corporation declined to fund Austin's proposal in July 1992, the proposal development process generated enthusiasm among a nucleus of key administrators and community representatives for restructuring AISD schools as proposed. These leaders remain interested in implementing the community's education vision within an AISD feeder system.

Cooperative Education and Internships

Among collaborative programs based in the school, perhaps the longest established are cooperative education and internships, the traditional school-work programs in the AISD curriculum. Cooperative education students are paid and spend more time in the work environment; internships are unpaid and do not require as much work time. Both cooperative education and internships require that a training plan be developed and approved by the teacher, employer, and student. The plan outlines the skills to be covered in class and on the job. Cooperative education students generally spend one hour daily in the classroom and a minimum of 15 hours per week in a supervised work experience, whereas the program for internships is more varied.

Cooperative education assignments are available in AISD through five programs: Marketing Education, Office Administration, Health Occupations, Coordinated Vocational-Academic Training, and Home Economics Education. A student can sign up for a one-year or two-year high school program. Cooperative programs in Marketing Education, Office Administration, and Health Occupations often attract college bound students. Other programs target primarily at-risk students (Lindsey, Interview, September 12, 1991).

A few examples of AISD cooperative education programs illustrate the degree of coordination necessary for these school-business endeavors to succeed. One example is the Marketing Education Cooperative at Austin High School, which targets at-risk students. Students spend one hour per day in the classroom, where they cover ten curricular areas of study, including advertising, sales, inventory procedures, and basic employability skills (e.g., human relations, communication, and handling responsibility as well as the more traditional skills such as memo writing, requesting information, filling out applications, writing resumes, and interviewing). Students spend a minimum of 15 hours per week working at Austin businesses, including Appletree, H.E.B., Red Lobster, The Kitchen Door, Furr's, Popeye's, The Olive Garden, Short Stop, and Solo Serve. Students generally begin at minimum wage, but over the course of the two years most of them who participate in the program receive raises, typically at six-month intervals. Employers are responsible for evaluating students for mastery of work-based skills and general work habits. Many students secure employment at these or similar businesses once they graduate. Indeed, for some students, the jobs have led to management positions at Albertson's, McDonald's, and H.E.B. paying more than $35,000 per year (Anderson, Interview, November 21, 1991).

A second example is the Health Occupations Education Cooperative at Crockett High School. This class normally enrolls 15-20 students per semester, most of whom are college bound. As with the Marketing Education Cooperative at Austin High School, these students spend one hour per day in class and 15-20 hours working in Austin businesses. In class, students study body systems (anatomy and physiology), medical terminology, CPR, work safety, leadership, ethical and legal responsibilities in the health field, health career teams and community resources, career exploration, and basic employability skills (e.g., resume writing, job interviewing, personal hygiene, and work habits). The curriculum is augmented by guest speakers from the health professions. The classroom is divided into study modules where students progress at their own pace through guidebooks that prepare them to be veterinary medicine assistants, radiology technician assistants, dental assistants, pharmacology aides, and dietary aides. They receive on-the-job training at dental offices, pharmacies, retirement centers, and other Austin businesses. Most of the jobs pay minimum wage, although some of the students have earned up to $7 per hour. Employers are given a training plan with skills the students are expected to master. They check off these skills as the students master them. They are also asked to evaluate the students every six weeks. The list of employers has been developed over many years; some have been with the program since it began in 1980. Several employers not only have continued to train students over the years, but also have hired many as they have graduated. The Crockett High School Education Cooperative teacher believes that both the students and the employers have benefitted from the program. Students have developed a better understanding of the behavior expected from them in the workplace and been given the opportunity to see if they are interested in pursuing careers in health; employers have gained qualified, supervised employees at a reasonable salary and been given the opportunity to screen for future employees (Harden, Interview, November 22, 1991).

An illustration of the unpaid internship approach can be found in the Health Occupations Internship class offered at Austin High School. Admission to the Health Occupations Internship is by application. To qualify, students must have a good attendance record, a 2.5 cumulative high school GPA, biology (or be concurrently enrolled), teacher recommendations which reflect a positive approach to learning and an ability to handle responsibility, and a personal interview by the Health Occupations Internship teacher. During 1991-92, 34 students enrolled in two classes. Most were college bound. The internship is a two-hour-per-day, semester-long course in which the students spend two days a week in the classroom and three days a week in five, four-week rotations through various surgical and medical departments of Brackenridge Hospital. In the classroom students are taught theory and practice. They study biology, anatomy, and physiology and are taught sterile techniques, communication skills, medical terminology, hospital expectations, and work ethics. The internship teacher also teaches nursing at the college level and believes that the coursework is challenging enough to be given honors level status. To help ensure a high-quality learning experience at each internship site, the teacher meets with the supervisor of each unit hosting a student to discuss unit objectives; the teacher also distributes study guides for each student and a sheet which delineates the tasks with which students can observe or assist (Rose, Interview, November 21, 1991).

The AISD cooperatives and internships offered for course credit are only a few partnerships that have been forged in Austin's vocational programs. Individual vocational teachers have established other innovative partnerships in their own classrooms. Two examples of emerging partnerships are taking place at Bowie High. One involves students in the hospitality class who are rotating through positions with the Hyatt Hotel in Austin. Other hotels have approached the district with the intention of forming similar partnerships with additional schools. The other is the food production class, which has formed a partnership with the Austin Chef Association (Lindsey, Interview, September 12, 1991). In all these arrangements, it is hoped that the students successfully completing a program will be offered employment upon high school graduation.

Magnet Schools

Magnet schools are another AISD educational approach. AISD has three magnet schools: the Science Academy at LBJ High School, the Liberal Arts Academy at Johnston High School, and a Magnet Program for Science, Math, and Computer Technology at Kealing Junior High School. These schools are designed for highly motivated, academically able students who have a strong interest in the designated area of study. Admission to all three is by application and is based on previous grades and attendance records, scores on standardized tests, positive teacher recommendations, essay submissions, and personal interviews. Students who commit to these programs are expected to complete a rigorous course of challenging academic coursework in addition to an extra hour of instruction per day. In return they experience an enriched learning environment with teachers who have been selected by the AISD administration based on the quality of their teaching. Students are provided with individualized attention through small classes, state-of-the-art equipment and facilities, advanced coursework, and innovative teaching techniques. At each school the curriculum is interdisciplinary and emphasizes research and application. A strong accent is placed on the development of critical thinking, communication, and analytical skills.

The three magnet schools receive significant support from the Austin business community, especially through the Adopt-A-School Program. However, the linkages which have developed between the business community and the Science Academy are so special that they deserve additional attention. In fact, the Science Academy was founded as the result of a business initiative. In 1983 an IBM-initiated task force met with officials of AISD to investigate the possibility of creating an academic science and technology program to respond to the challenge of Austin's emerging high tech industries. An advisory committee composed of representatives from local technical companies and postsecondary institutions was formed. From this coalition of business and education emerged the blueprint for the Science Academy. The advisory board remains an important source of advice and support for the Science Academy. It includes executives from Abbott Laboratories; Advanced Micro Devices; AT&T; Greater Austin Chamber of Commerce; AISD; CompuAdd; Espey Huston; Garcia, Morrison & Sprouse; S.A. Garza Engineers; George More Investments; IBM; Lockheed; MCC; 3M; Arnold Menn & Associates; Motorola; Radian; SEMATECH; Seton Medical Center; Southwestern Bell Telephone Company; Texaco; Texas Instruments; Texas Department of Public Safety; Tracor; and The University of Texas at Austin (Austin Independent School District, n.d.).

The director of the Science Academy meets with the full advisory board every second month and with an executive committee of the board the other months. Thus the partnership between school and business, which was purposefully woven into the fabric of the academy from its founding, has continued at an intense level. Business committees assist the Science Academy faculty in developing curricula which will be useful in industry applications. This joint effort ensures that the courses will reflect the most effective combination of theory and practice. Most recently this collaboration has been responsible for the development of the Planet Earth curriculum as well as the middle school curriculum on Non-Point Source Pollution. In addition, businesses augment these curricula by providing guest lectures (Sinkin-Morris, Interview, November 22, 1991).

Internships, although arranged on an *ad hoc* basis, are an especially attractive component of the Science Academy curriculum. Students may intern for sponsoring companies during the school year or the summer. Each intern has a company mentor. During the school year, students may sign up for a two-hour-a-day, four-day-a-week internship at companies such as Texas Instruments, 3M, St. David's Hospital, or Scientific Measurements. Students are not paid but receive course credits. Depending on the students' abilities, they may be simply running errands or they may be programming software. Summer interns work more or less full-time at the same or similar companies and are paid for their services. At any time, 20-30 students are serving in internships (Sinkin-Morris, Interview, November 22, 1991).

Mentor Programs

Mentor programs improve school-to-work transition by establishing constructive relationships between adult employees and students and by fostering improvements in school performance, attendance, and involvement of troubled students. Austin has two major programs specifically geared to provide mentors to at-risk students: Project Mentor and St. Edward's University Mentor Program. Smaller programs include those operated by Project M.A.N., Big Brothers/Big Sisters, Austin Interfaith, Communities in Schools, Neighborhood Longhorns, a variety of churches, urban development/family centers, and city employees.

Project Mentor, operated by AISD and the Austin Adopt-A-School Program, matches members of the business and residential communities with students who need encouragement to stay in school. The primary goals for Project Mentor are to build self-esteem, develop positive relationships with adults, and reduce the student dropout rate (Austin Independent School District and Austin Adopt-A-School Program, 1991). The program recognizes the relevance of education through goal setting and through complete evaluations of each student's work. The mentors agree to commit a specified amount of time per week throughout the school year to the students assigned to them. Mentors tutor, act as role models, or serve as an adult friend.

Project Mentor began in 1987 as a twelve-week pilot program developed by Sylvia Stern, an IBM executive, involving 67 mentors in 8 schools. In 1988, it expanded to serve 400 students in 44 schools. In 1989, it increased to 1,064 students in 56 schools. By the 1991-92 school year, 87 of Austin's 88 schools participated in at least one of the 1,000 partnerships. Even so, the number of students identified as candidates for the program increases faster than the number of individuals who volunteer to be mentors. Administered by loaned executives from IBM during its first three years, Project Mentor has been coordinated by a full-time staff member at the AISD central office since 1990-91. Local campus coordinators report to the head of the program. Project Mentor operates primarily through adopters in the Austin Adopt-A-School Program.

Although the AISD Office of Research and Evaluation has conducted some research on the effect of mentoring on dropout rates, AISD gauges the success of the program by the number of partnerships and the number of students who want mentors. Data are not available regarding the effectiveness of the program in encouraging learning and achievement (Robertson, Interview, November 12, 1991).

The *Saint Edward's University Mentor Program* pairs college students from migrant farm worker families with Hispanic at-risk children in elementary schools. Begun in September 1990 with a three-year grant from the Kellogg Foundation, the program has served students in seven AISD elementary schools: Becker, Dawson, Linder, Pleasant Hills, Travis Heights, Widen, and Williams. The project brings together 500 second and third grade students with 100 St. Edward's University students who come from migrant families. Each St. Edward's University student works with 2 to 5 elementary school students identified by school staff as at-risk. The program is administered by a full-time coordinator at St. Edward's University in collaboration with the principal at each participating school (St. Edward's University, 1991).

Through the program, elementary school students receive help with their studies and encouragement to work toward a higher level of education. The St. Edward's students serve as tutors and role models for the elementary school students, earn wages and internship credit, and have opportunities to work in a professional environment. One unanticipated outcome is that many of the St. Edward's students have been attracted to teaching as a career as a result of their participation in the program.

While much mentoring is underway, there is clearly a need for more. Beyond businesses, many other Austin organizations can play a role. Churches and synagogues offer significant potential as a source of mentoring and youth leadership activities. In this regard, the "Rites of Passage" program for African American youth recently implemented by Dr. Sterling Lands and others at the Greater Calvary Baptist Church is a notable example (The Austin Project, 1992, Appendix D).

Leadership Austin: An Incubator for New Programs

Each year, the Greater Austin Chamber of Commerce selects a group of promising leaders and offers them a series of monthly training sessions in a program entitled Leadership Austin to educate them about the Austin community. As an integral component of Leadership Austin, each year's group selects a problem, then devises and implements a community service activity to address it. Several of Austin's collaborative education programs began as Leadership Austin projects, including the Gettin' Down to Business program and the Employers Support Parenting program. In addition, Leadership Austin has provided the stimulus to organize other efforts. As examples, Dan Bullock took the initiative to get Austin's Adopt-A-School Program in place, while Sylvia Stern initiated Project Mentor.

Another education program assisted by Leadership Austin is the Aim High Leadership Program for elementary school students. In Austin's elementary schools, students are selected for the gifted and talented program called Aim High on broader criteria than academic performance. Leadership potential is a strong consideration. Through the Aim High Leadership Program, adult community leaders meet with Aim High fifth graders in a series of brown bag luncheons. In another part of the program the students are instructed to develop a resume, and efforts are made to provide them with a job shadowing experience that matches their interests.

Given its successful track record in inaugurating programs successfully, Leadership Austin should be considered a significant resource for implementing actions to improve school-to-work connections. The Leadership Austin alumni also are an important resource, in view of the interest they already have demonstrated in education issues.

Resources for Career Awareness and Development

Career awareness and development needs to be improved among AISD students. Fortunately, a variety of career-related resources are available in the Austin community; unfortunately, however, most are not being used by elementary or secondary students.

Texas State Occupational Information Coordinating Committee (SOICC)

The SOICC is a joint venture sponsored by five state agencies and maintains an 800 number Career Hotline that anyone can call to receive pertinent information on job search skills such as resume writing and interviewing. The Career Hotline is only one of the valuable resources provided by the Texas Employment Commission (TEC) to aid teachers, counselors, and students in school-to-work transition. Teachers and counselors can call to obtain helpful guides and information to aid them as they provide counseling and assistance to students preparing to graduate from high school and go on to further education or employment.

The Texas SOICC has national data and statistics on more than 1,000 occupations. Texas-specific information is included only for those occupations which occur in the most significant numbers in the Texas economy. Each Texas profile provides information on 1985 total employment, 1995 projections, annual average job openings, openings due to growth, openings due to turnover, relative opportunity, average hourly wages, top employing industries, and suggested academic/elective courses. This information is free and readily accessible to anyone who chooses to pick up the telephone and take advantage of it. The SOICC office also is in the process of completing a new comprehensive report on jobs in Texas which will include employment forecasting through the year 2000.

Adult Career Exploration Services (ACES)

The ACES center is a communitywide resource for all residents of the Austin community who are 16 years or older and is provided by the Austin Community College (ACC) at its 5930 Fiskville Road offices. ACES has three components: career testing, career counseling, and a career library. The library may be used by anyone at no charge. ACC students receive the testing and counseling services free, but nonstudents can pay a fee of $15 and also receive these services. The ACES manager may waive fees, depending on the situation.

The ACES career testing battery consists of three tests. One test measures the student's skills and interests, a second is designed to identify careers that best suit the student, and a third test identifies suitable working environments. Testing is limited to 10 to 15 students at a time and takes about three hours to complete. Appointments can be made for testing Monday through Friday.

The ACES testing and career library could be useful to all AISD students. These services are impressive for many reasons. Through the testing, students are able to identify careers and work environments that suit them. Then the students can look up these careers and get information on the education and training required, the pay, the benefits, and the drawbacks of the careers. Information on schools where one can be trained for certain careers is also available. The library has files on local Austin employers to help prepare students for interviews and also has information on expanding occupations.

Several youth organizations offer useful resources for career development, including Junior Achievement, Explorer Scout posts for police and firefighting (established at Austin High School), and various student vocational organizations, including the Vocational Industrial Clubs of America (VICA), the Distributive Education Clubs of America (DECA), the Future Farmers of America, and the Health Occupations Students of America (HOSA).

Another effort that is well regarded by industry is the Austin chapter of the Texas Alliance of Minority Engineers (TAME), an effort to acquaint minority students with scientific and engineering professions. The program identifies promising minority students in mathematics classes in middle schools and offers them a program of seminars, competitions, industry visits, field trips, internships, and other activities devised to feed an interest in science and engineering careers. Each TAME chapter works with a faculty advisor and a group of industry executives. Although the TAME program is geared to direct students into professions requiring a baccalaureate degree, the techniques would seem to be equally applicable to technical careers requiring less than a baccalaureate degree.

Postsecondary Education and Training Options

A wide variety of postsecondary education and training opportunities is available in the Austin area, including four-year colleges and universities, a community college, and proprietary schools. Six four-year colleges and universities, Concordia Lutheran College, Huston-Tillotson College, St. Edward's University, Southwestern University (Georgetown), Southwest Texas State University (San Marcos), and The University of Texas at Austin, are located within the three-county metropolitan area. Austin Community College, the two-year college serving the Austin area, offers instruction in six locations. A project survey conducted in fall

1991 identified at least 26 private proprietary schools in Austin. In addition, federally funded programs for the economically disadvantaged are offered through the Austin/Travis County Private Industry Council, the Rural Capital Area Private Industry Council, and the Gary Job Corps Center in San Marcos.

In light of the many options for postsecondary education and training in the Austin area and the vast differences in the cost, length, and types of programs, accurate information on available educational resources should be systematically collected and provided to consumers. Better information on these options needs to be made available to prospective students, their parents, and AISD counselors as a critical part of career awareness and development. The high school student who is not headed immediately for a baccalaureate degree but realizes that learning beyond high school will be required for success in tomorrow's sophisticated and technologically advanced workplace must have access to reliable information about the efficacy of the options available and the ways to pay for such training. The latter should include tuition reimbursement arrangements available to employees from various Austin-area employers, including, for example, the State of Texas and H.E.B. grocery stores.

City of Austin Programs

The City of Austin has taken a keen interest in addressing the problems of youth. In 1991, the City Council made opportunities for youth its number one priority, hired a youth services coordinator, and established a Council Subcommittee on Opportunities for Youth to oversee the effort. An additional $1.1 million was budgeted for youth programs, focused on six priority issues: youth crime, employment, child abuse, education, teen pregnancy, and child care. In addition, the City of Austin has joined with Travis County in sponsoring the Community Action Network (CAN) initiative to improve coordination and integration of social services, especially services to youth.

In education, the City of Austin funds parent training classes, a workplace literacy program, several library outreach programs, and other efforts. As part of its youth employment activities, in summer 1992 it sponsored a summer employment program with a goal of creating employment for 1,000 youths through positions funded by the Austin/Travis County Private Industry Council, the City of Austin, and various private employers. In 1991 and again in 1992, Austin sponsored an intensive Long Term Employment program to coach, train, and place twelve high risk youths into permanent positions with the city. A new job classification, vocational intern, was created to facilitate the employment of youth in career-track jobs with the city; positions also were reserved for youth in the City of Austin Electric Department's new apprenticeship program as well as in the training program for Emergency Medical Technicians (EMTs).

The Austin Project: Promoting Investment in Youth

In May 1992, the mayor of Austin, the Travis County judge, and the president of the AISD Board of Trustees launched The Austin Project. Directed by Professors Walt and Elspeth Rostow of The University of Texas at Austin, The Austin Project in summer 1992 articulated a comprehensive plan for investment in youth, organized around three basic principles: *continuity* of community action from prenatal care to entrance into the workforce, a priority *emphasis on preventative investment* rather than damage control, and a *partnership* among all elements of the Austin community, with special emphasis on the role of disadvantaged neighborhoods in the planning and execution of the project. The project produced a comprehensive community plan in September 1992 (The Austin Project, 1992). Investments in youth were presented in terms of three age ranges: 0 through 8 years old, 9 through 16 years old, and 17 through 25 years old. The plan's attention to this last age group is primarily related to issues of preparation for employment and school-to-work transition, which was one of the five primary themes of The Austin Project.

In the area of school-to-work transition, The Austin Project has already moved from plans to action. The project hosted visits to Austin of representatives from the American Express Corporation and the National Academy Foundation to initiate discussions with the local banking and finance community and the Austin Independent School District about the formation of an Academy of Finance. In addition, prompted by The Austin Project, George and Ronya Kozmetsky, on behalf of the National Center for Manufacturing Sciences and the RGK Foundation, have offered the Austin ISD a mobile robotics instructional laboratory providing a series of hands-on activities for middle school students to acquaint them with the state-of-the-art technology used in modern manufacturing. Only one other such mobile laboratory is in existence -- in Ann Arbor, Michigan.

The Austin Project gave special attention to the issue of ensuring that all students are ready to learn when they enter school. The project devised plans to reduce substantially Austin's high rates of infant mortality, teen pregnancy, and low weight babies and to improve health and nutrition from the prenatal period through the first years of life. The Austin Project outlined plans to scale up parent training for infants age 0-3, using techniques pioneered by the CEDEN Family Resource Center in Austin. It also called for tripling the Head Start program in Austin, making such services available to at least 75 percent of all eligible families. The consequences of failing to make these investments in the prenatal and early childhood period is that Austin must pay much more in later years for neonatal care, special education, and prisons.

Conclusions

As this chapter makes clear, the considerable collaborative activities underway in Austin demonstrate significant community interest in Austin's schools. However, almost all the programs have been established on an *ad hoc* basis, separately from one another, without linkage or reinforcement. Most are not integrated with changes in instructional practices or curriculum, nor do they provide support and training for teachers to implement needed changes in schools.

It is equally clear that volunteer contributions and public school funding are not substitutes or alternatives. To place Austin's school-employer partnership activities in perspective, the total value of all cash, goods, and services contributed totals no more than $10 million annually. This compares with total AISD expenditures of $306.6 million in 1991-92 (AISD, 1991e, section I, p. 40). Thus in strictly monetary terms, total community contributions amount to about 3 percent of Austin ISD's total school budget. Of course, the value of the community contributions goes beyond strict monetary accounting. There clearly are intangible values to parental and business involvement in schools. Nevertheless, these figures demonstrate clearly that voluntary community contributions can be no substitute for adequate school funding.

The most effective initiatives have strong support both from the schools and from the community. In short, partnerships must stand on two feet. For example, the A+ Coalition and Adopt-A-School Program are jointly administered and supported by staff inside the school district as well as from the community.

If today's students are to be prepared adequately for tomorrow's workforce, employers must take an increasingly active role in designing real world applications to be incorporated into the curriculum taught in schools. Teachers must be able to connect the theory currently being taught with these applications. The partnership that has emerged at the Science Academy may serve as a model for future business-school interaction. Likewise, the professional development activities for teachers undertaken by Motorola and others under Austin's Adopt-A-School Program hold significant promise. Career awareness also needs to be improved, making use of available community resources and improving available information about postsecondary education and training options.

The remaining chapters offer a framework for a coherent system to improve learning, student achievement, and school-to-work transition in Austin. It involves changing instructional practices by bringing classrooms and workplaces closer together, recognizing the central role of the teacher in producing change, and supporting and encouraging the development of student skills through community support in a linked series of collaborative programs.

PART II.

A STRATEGY FOR AUSTIN

Chapter 6. Foundations for Skill Development and Career Awareness

Rationale

Austin must clearly recognize and accept that K-12 public education should prepare children for all of life's roles and opportunities, including work and careers. In so doing, however, should it build a foundation for success in work, or should it prepare students to continue their schooling? Are these two goals mutually exclusive or mutually reinforcing? Perhaps we have not debated these issues sufficiently because, until recently, the answers were moot, or people assumed that preparation for college also prepared children to meet workplace demands. This was due in part to the shallowness of these demands. As long as American industry reigned supreme in the world and the American workplace was organized around rote tasks which required only the most basic skills from the vast majority of its workers, the demands of many workplaces remained minimal, while the prerequisite needs of continuing education were substantial. Thus the K-12 education system concentrated its efforts on preparing students for further education.

In the last two decades, however, the supremacy of American industry has been seriously challenged by that of other nations. In order to compete with nations whose industrial growth came later than our own, American industry slowly is recognizing the need to replace the Tayloristic model of workplace organization by the high performance model used by its global competitors and is making this change. Modern high performance workplaces maximize their human inputs. These workplaces require advanced levels of higher order thinking skills and disperse important functions such as decisionmaking, planning, and quality control throughout the organization. Thus, the emerging workplace demands a greater range of skills and a higher level of proficiency in these skills of its employees than at any time in the past, and it requires this from all workers, not just a few.

Only 25 percent of American students graduate from college, but virtually all of them enter the workforce at some point in their lives. Students must be educated to succeed in the workplace, whether they enter it immediately after high school or after further formal education. This does not mean that education must become an "either/or" proposition. It is not a question of preparing students for work or for higher education. Just as all students must be prepared to meet the demands of the workplace, so too must they have a sufficiently strong educational background to benefit from further learning opportunities in college, in a training path, or in a job.

Fortunately, the skills necessary for success in the modern workplace and the skills necessary for success in higher education are not mutually exclusive but rather are mutually reinforcing. The methods that are used to train prep school students to be critical thinkers should not be reserved for the elite. Furthermore, some of the teaching techniques that are proposed to inculcate workplace skills into the school curriculum, such as applied academics, not only facilitate the application of theoretical knowledge to the workplace, but also enhance the mastery of academic subjects, thus strengthening the foundation on which to build further learning.

For the K-12 education system to produce graduates who can function effectively as decisionmakers, planners, analysts, and communicators in the modern workplace, it must raise its standards. More students must be encouraged to take courses which are on or above grade level. They must obtain higher levels of proficiency in the *basic skills* such as reading, writing, mathematics, listening, and speaking, and they must be able to apply these skills to workplace responsibilities. If not, misunderstood directions and misread or miscalculated information by workers will have serious consequences in terms of cost, efficiency, time, and safety for the companies that employ them.

Since the high performance workplace depends on all of its employees to contribute to the efficiency, growth, and direction of the company and to ensure the quality of the company's products or services, its workers must possess a variety of *"soft skills."* These "soft skills" include *personal qualities* such as perseverance, motivation, initiative, responsibility, and the ability to set and meet goals, and *thinking skills* such as creative thinking, critical thinking, reasoning, and problem solving. "The primary concern of more than 80 percent of the employers [surveyed for the NCEE Report] was finding workers with a good work ethic, appropriate social behavior" and other "soft skills" (NCEE, 1991a, p. 3). Yet despite evidence that employers are as concerned about deficiencies in personal qualities and thinking skills as they are about deficiencies in basic skills, these "soft skills" are rarely addressed in schools in any systematic way.

Anecdotal evidence from Austin employers illustrates how costly this omission is to the modern workplace. One employer described employees who went through the company training program and worked competently for two or three months and then quit. During exit interviews, the employees indicated that they had liked their jobs, fellow employees, and even their supervisors, but had accumulated enough money to spend a few months "bumming around," and left their jobs in order to do just that. The employers indicated their disappointment in the lack of perseverance and commitment demonstrated by these young employees. Another employer recounted a situation in which more than a day's work on a production line was lost because an employee failed to notify anyone that a necessary input was in short supply until it was entirely depleted; he showed a complete lack of awareness of the consequences of his action or the need for his foresight and responsibility in maintaining proper supplies for his job (Electronics Industry Representatives, Interviews, January 31-March 5, 1992).

The modern workplace is highly diversified. The sheer mass of information and technology in the modern world requires a vast array of specialists to process, manage, and use it. For example, most students, their parents, and their teachers will readily identify doctors, nurses, and technicians as people who work in a hospital. The modern hospital, however, has a far more extensive array of support personnel than most people would imagine. There are psychologists, social workers, therapists, pathologists, technologists, emergency medical technicians, histologists, pharmacists, administrators, public relations specialists, personnel clerks, dieticians, dishwashers, housekeepers, cooks, medical records technicians, admitting clerks, accountants, collection clerks, managers, switchboard operators, and many others whose efforts are essential to the operation of a hospital. Most other workplaces have an equally large array of positions, and each position has its own requisites for preparation and training.

Because of the bias of the K-12 public school system toward higher education, many school administrators, counselors, and teachers do not maintain regular contact with employers outside the school environment and are unaware of skill requirements in different fields. Hence, students are not prepared to consider and evaluate the full range of career opportunities, nor are they informed of the prerequisites for, and responsibilities of, these careers.

Students are asked to make critical choices regarding course selection without adequate knowledge of the educational requirements of careers for which they might be suited and without the realization that failure to take some courses may foreclose the possibility of entering certain careers, training paths, or colleges. Indeed, too many students enter high school without realizing the implications of their course selections. As a result, most youths exit high school with an ill-defined sense of the spectrum of possibilities open to them and lacking the work and academic skills necessary for entrance to college or productive employment.

Austin's strength lies in the commitment of the community to rectify this daunting situation. Already, many efforts are underway to provide AISD youth the information and training that will promote future workplace success. Employers are providing assistance to schools in educating students to be more productive members of tomorrow's workforce. They have provided educational opportunities for teachers in employee training classes, sponsored teacher-executive exchanges and partnership programs, and offered professional development opportunities. For example, businesses and teachers share responsibility for developing school curricula at the AISD Science Academy. Through the Austin Adopt-A-School Program, businesses have entered into more than 1,500 partnerships to provide critical resources to area schools, and several provide internships for students. Through Greater Austin Chamber of Commerce programs such as Gettin' Down to Business and High Expectations, businesses aim to strengthen incentives for student achievement and provide improved information about career alternatives to students. Teachers participating as summer interns in Motorola's Teachers in Industry program use the business experience to assess workplace demands, develop applied academic curricula, and become more knowledgeable about career development for students.

Clearly extensive activity is underway and has been effective; however, these programs have been established on an *ad hoc* basis and largely operate independently of one another. Indeed, educators and employers have not systematically entered into relationships such that effort in one area leverages increased effectiveness of other efforts. While basic skills, "can-do" attitudes, sound expectations of the demands of employment, and awareness of a variety of career and college options must be firmly in place by graduation, development of these interconnected areas must begin in the early grades and be linked throughout the education continuum. Support from employers generally has been based on relationships with individual schools, rather than on a jointly developed plan that addresses student needs from kindergarten through high school graduation. A student may receive a number of incentives for success at one school and then move into a school where no such programs exist. Many committed mentors work with Austin youth, but frequently without training, guidance, or availability of professional support. Some individuals would like to be involved on a limited basis, but find this difficult to arrange. Direct communication between educators and employers is largely the result of individual efforts; the benefits of this interaction, where it occurs, are not disseminated throughout the system. A business may be assisting a school with funds while teachers in that school are unaware of the skills and personal qualities sought by that employer in its employees. Austin's challenge is to concentrate the resources and commitment of its employers and teachers in a focused effort to provide K-12 students the foundations in skills and career awareness to guarantee their future success.

If the evidence from other groups who have entered into such partnerships is any indication, the benefits of coordinated interaction between educators, employers, parents, and the community at large are manifold. This approach will generate stronger interest and commitment among students and teachers, promoting higher school success rates. The Austin school district will profit from the improved articulation of needs for its graduates from focused community support. Employers will have the opportunity to make an early connection with their future workers by participating in setting AISD goals, providing support for educational achievement, and offering information about the spectrum of employment possibilities.

Austin employers, given the opportunity to shape and support the learning process, are rewarded with potential workers aware of their needs and skilled to meet them. A closer match between the needs of the work community and the abilities of the workers may reduce the magnitude of social problems generated by unemployment, underemployment, and perceived loss of control. Austin would be in a better position to sustain growth with a stronger education system, more clearly articulated and expanded job possibilities, and fewer people dependent on the city's social services because of a lack of viable options for leading productive lives.

Students who have not been made aware of the expectations of the workplace, and who have been instructed and trained inadequately to meet the demands they will face when they leave the educational system, have not been well served; they have invested 12 years in schooling that has not provided strong employment prospects. Improving and coordinating the foundations for developing meaningful basic skills, thinking skills, and personal qualities, and promoting a clear understanding of employment demands and career alternatives in a systematic fashion for AISD children in every grade are absolutely essential to a strong Austin economy and community in the future.

Bridging the Skills Gap

Across the education and employment spectrum, the rallying cry today is that the skills being taught in schools are unrelated to the skills students need to succeed in the workplace. We hear this from employers who find their applicants unqualified and unprepared for the demands of work. We hear this from students who tune out and turn off to school because they perceive that what they are being taught in school is not relevant to what they need to know to secure employment and to advance their careers.

As this cry has become more strident, many education, business, and government groups have sought to identify the skills necessary to succeed in work and to incorporate these skills into the school curriculum. This section summarizes the more important of these initiatives and assesses an AISD program which, if extended, could aid in bringing workplace skills into the classroom. This section also attempts to illuminate the issues involved in devising and implementing a program appropriate for Austin.

Identifying the Skills Employers Need

A review of recent attempts to identify the skills essential to success in the workplace yields two important and perhaps startling conclusions:

1. The skills identified are remarkably similar despite the fact that these studies were conducted independently and in different locations.

2. Employers are at least as concerned about the personal qualities and thinking skills of their employees as they are about their level of proficiency in the basic skills such as reading, writing, and arithmetic.

Although the reports have given different names to the same skills or subsumed several related skills under one heading, careful analysis of the accompanying definitions reveals the similarities between apparently different lists. This analysis suggests there is a consensus list of skills that should be taught in school to prepare young people to function effectively in a variety of workplaces. It also suggests that the skills necessary for workplace success in Austin are very similar to those identified elsewhere.

The second conclusion, that today's employers are extremely concerned about deficiencies in the personal qualities and thinking skills of job applicants, may result from several factors. The personal qualities and thinking skills that employers now expect from all their employees, such as a sense of responsibility, motivation, initiative, and creativity, have always been valued in the workplace, and our society has always, almost as a by-product, produced a select number of people who possess these "success" traits. As workplaces move to the high performance model, such traits are now needed at all levels of employment, and the gap has become more apparent.

Many personal qualities (e.g., honesty and reliability) which employers find lacking in employees are traits that in the past were routinely inculcated in the home. With the changes that have occurred within the American family over the last few decades, many of these traits are no longer being taught effectively there. If students are to be prepared for the workplace, schools must once again expand their mandate to teach behaviors that were formerly part of basic parenting. This presents a major challenge to the modern school. Fortunately, these skills do not need to be taught as separate and distinct subjects, but are best taught in conjunction with the academic program. Indeed, applied academics, which combines theory and practice, holds the key to bringing the two together.

The two most widely referenced reports identifying the skills that employers want are *What Work Requires of Schools*, produced by the Secretary's Commission on Achieving Necessary Skills (SCANS, 1991), and *Workplace Basics: The Skills Employers Want* (Carnevale et al., 1989), a report issued by the American Society for Training and Development (ASTD). The SCANS report identified six basic skills (*reading,* *writing, arithmetic, mathematics, listening*, and *speaking*), six thinking skills (*creative thinking, decisionmaking, problem solving, seeing things in the mind's eye, knowing how to learn,* and *reasoning*), five personal qualities (*responsibility, self-esteem, sociability, self-management,* and *integrity/honesty*), and five competencies that are valued in the workplace. The competencies, a unique feature of the SCANS report, include (1) *Resources*: identifies, organizes, plans, and allocates them; (2) *Information*: acquires and applies necessary information; (3) *Interpersonal*: associates with others in order to achieve a common goal; (4) *Systems*: understands how system components interact to achieve goals; and (5) *Technology*: effectively selects and uses appropriate technology (SCANS, 1991, pp. 12, B-1, B-2).

Mastery of the SCANS competencies requires that students be able to combine their skills with a knowledge base in several areas. In this sense, they may be considered second-order skills. The important point that the SCANS report makes by including these competencies is that teaching individual skills may not be sufficient to ensure that they will be combined in appropriate ways or used with an appropriate knowledge base. It is akin to the first grader who may be able to learn the phonetic sounds individually but may not be able to blend them to read words.

The ASTD report approached the identification of workplace skills from a slightly different perspective. The skills employers want are identified in order to set up programs within the workplace to remediate the deficient skills. The ASTD report identified the following skills and traits as necessary for success in the workplace: (1) *The Foundation: knowing how to learn*; (2) *Competence: reading, writing*, and *computation*; (3) *Communication: listening* and *oral communication*; (4) *Adaptability: creative thinking* and *problem solving*; (5) *Personal Management: self-esteem, goal setting/motivation*, and *personal/career development*; (6) *Group Effectiveness: interpersonal skills, negotiation*, and *teamwork*; and (7) *Influence: organizational effectiveness* and *leadership* (Carnevale et al., 1989).

Another important report resulted from focus groups and surveys conducted in Rochester, New York, with students, parents, teachers, community representatives, workplace managers and supervisors, and college teachers and administrators. All were asked to articulate their aspirations and expectations for Rochester's students. Once again the overwhelming concern of employers was for the personal qualities of their new workers. Traits especially valued in the workplace included "work ethic, motivation, initiative, self-discipline, and self-esteem" (NCEE, 1990, p. 6). College administrators and teachers echoed these employer concerns to a surprising degree. In fact, personal management skills such as reliability, integrity, self-control, respect, and motivation were found to be the most critical skills for both employment bound and college bound youths (NCEE, 1990, p. 15), lending credence to the premise that the personal qualities and thinking skills which are so important to success in the workplace are equally important to success in postsecondary education.

The Austin Project A+ Curriculum Momentum Team also identified the skills high school graduates should have. The team held 32 workshops involving more than eight hundred participants, including parents, students, educators, and business leaders. From these discussions emerged a portrait of the ideal AISD graduate of the 21st century. This ideal graduate should

1. when given a subject and a reasonable length of time, be able to access, organize, synthesize, and discuss the implications of relevant information, as well as use the appropriate technologies as tools;

2. possess interpersonal skills to function collaboratively;

3. be open to learning, be self-motivated, be responsible, make well-reasoned and ethical decisions, think creatively, and problem solve;

4. listen and speak effectively;

5. understand, appreciate, and use quantitative analysis to describe current critical scientific and social issues, as well as suggest solutions to the problems and evaluate limitations of the proposed solutions;

6. assume an active citizenship role;

7. know political systems, understand cultural and ethnic diversities, and be proficient in English and one other language; and

8. be a well-rounded individual (Project A+, 1991.)

While the Momentum Team's goal was not limited to having AISD produce work-ready graduates, most of the desirable attributes it identified are strikingly similar to those identified by the SCANS, ASTD, and other efforts specifically designed to ascertain the skills employers want. Such similarities are testimony to the generic nature of these skills.

Basic Skills

Students who exit high school with poor basic skills are twofold losers in the job market: they have greater difficulty finding meaningful employment, and, once they do, their employers are less likely to invest in their training. Indeed, Sue Berryman, former director of the Institute on Education and the Economy, argues that employers are shifting their hiring away from those inadequately prepared in the basics to those who are already credentialed. She points out that "the most recent estimate of what the corporate sector actually spends on training basic skills in their employees is only eight-tenths of 1 percent of corporate training investment" (1988, p. 42). Inadequate basic skills development also forestalls success in postsecondary education. Thirty-four percent of Texas college students who took state-mandated reading, math, and writing tests at the end of their freshman year in 1990 failed at least one section and were required to take remedial courses. Indeed, figures from the Texas Higher Education Coordinating Board indicate that the state spent $92 million in 1989 and 1990 to teach college students basic skills (Project A+, 1991.)

There is little disagreement as to which basic skills need to be mastered in order to succeed in the workplace. The ASTD report includes *reading, writing, computation, listening,* and *oral communication*. The SCANS report differs only in that it breaks computation into two categories: *arithmetic*, which is more computational, and *mathematics*, which is more analytical.

In order to enhance student mastery of the basic skills sufficiently to bridge the gap between school and work, four changes must occur in the schools. First, employment bound as well as college bound students must be required to take the more rigorous academic subjects that the current curriculum offers and that the competitive workplace demands. Failing to make the connection between what they learn in school and what they need to know for later success, many students take the easy way out, substituting less rigorous courses such as consumer economics math for more rigorous courses such as algebra. Indeed, the Texas Commissioner of Education points out that many Texas students graduate from high school without ever taking a high school level math course (Meno, Presentation, November 19, 1991).

This problem has become so apparent in the last few years that many educators are moving to raise graduation standards to force students to take more rigorous courses. The AISD, in its strategic plan for 1992-1997, has adopted as one of its objectives the goal that "*all* students will function successfully at or above international standards" [emphasis added] (AISD, 1992, p. 7). To reach this objective, the AISD Board of Trustees voted in 1992 to raise academic requirements for graduation. Among other changes, the board reduced the number of electives students may take, increased the number of core academic courses students must take, and stipulated that students must take high school algebra to graduate. Although even stiffer course requirements need to be instituted, these first steps will ensure that more students take advantage of the best education that the existing curriculum has to offer.

Students unable to meet the more difficult requirements on their own will require additional support and resources to help them succeed. For example, when the Fort Worth Independent School District added algebra as a requirement for all high school students, it made available workshops on algebra for students who needed special help. It also strengthened the middle school mathematics curriculum leading to algebra. Raising standards without providing additional support will simply add incentives for students to drop out or for teachers to pass unqualified students. The district must respond to its students' needs as well as enforce more rigorous graduation requirements.

Three other changes need to take place in school to bridge the basic skills gap and better prepare students to enter the world of work, whether that entry comes immediately after high school or after further formal education. These changes require improving the current curriculum by adding communication skills to the required curriculum, by increasing proficiency standards in all the basic subjects, and by teaching the basics with an emphasis on application to facilitate their transference to the workplace and to learning outside of school.

First, while reading, writing, and math receive a considerable amount of attention in the classroom, listening and oral communication, when taught at all, are often taught only in electives, such as drama and debate. Yet listening and speaking skills are extremely important in the workplace and in life and need greater emphasis in school. According to ASTD's *Workplace Basics*, "The average person spends 8.4% of communications time writing, 13.3% reading, 23% speaking, and 55% listening" (Carnevale et al., 1989, p. 11). Efforts must be made to ensure that communication skills become part of the required curriculum. As long as these skills are taught only in elective courses, their importance is understated, their reach is limited, and their continued existence is subject to the vagaries of budget cuts and to the current efforts to reduce the number of elective courses students may take.

Second, the level of proficiency necessary for success in the workplace has risen dramatically in all the basic skills. Consequently, schools must raise their standards if they are to produce graduates who are prepared for the rigors of the emerging workplace. The ASTD report says that "The workplace of the past was one where those with limited academic achievements could succeed . . . . Most employers today cannot compete successfully without a workforce that has sound basic skills" (Carnevale et al., 1989, pp. 10-11). The Commission on Skills of the American Workforce, in its report *America's Choice*, recommended that all students be required to pass a series of performance-based assessments by age 16 to achieve a Certificate of Initial Mastery which would be benchmarked to the highest standards in the world (1990, pp. 5, 69-70). The Texas State Legislature has concurred and in 1991 (H.B. 2885) adopted the principle of working toward a public education system in which Texas students acquire a Certificate of Initial Mastery. Moreover, the AISD recommends in its strategic plan that all students obtain level 3 (high school) Subject Mastery Certificates to graduate. To obtain these certificates, students will need to reach a level of proficiency that meets or exceeds the "highest national and international standards in at least the five basic areas: reading/language arts, mathematics, the sciences, history, and geography" (AISD, 1992, p. 10).

Few studies actually define the level of proficiency needed to succeed in the workplace. A notable exception is Project C^3 in Fort Worth, in which over 3,500 employees from 280 businesses, institutions, and agencies performed analyses of more than 850 job classifications (FWISD, n.d., p. 1). The employees identified the common tasks performed in their jobs, then explained what workers do to accomplish each of the identified tasks. In a second survey, workers used a five-point rating scale (rudimentary, basic, intermediate, adept, and advanced) to specify the levels of proficiency necessary in math, reading, writing, and communicating to perform each task successfully. The results of this study are instructive. Among the jobs analyzed, 70 percent required a high school diploma and 30 percent required advanced training beyond high school. Most jobs required proficiency levels at the intermediate or higher level (FWISD, 1991a, p. 14). The Fort Worth survey concluded that high school graduates proficient only at the basic level "have the reading competencies required for just 28% of the jobs that were analyzed; speaking and listening skills for 22% of the jobs; and reasoning and problem solving skills for 25% of the jobs. High school graduates with basic levels of proficiency are prepared to compete only for lower entry positions in the workplace" (FWISD, 1991b, pp. 1-2).

Third, the reading, writing, and math skills taught in school often do not transfer well to the workplace. In part this is because mastery of purely abstract knowledge does not guarantee the ability to apply that knowledge in real world situations. In order to apply abstract knowledge the worker must sift through discrete bits of abstractions, identify those which are relevant to the current situation, and apply them in the correct mix and sequence. Furthermore, examinations of the modern workplace reveal that the reading, writing, and math taught in schools are qualitatively different from the reading, writing, and math needed in the workplace. For example, with regard to reading the ASTD report states that "traditional classroom reading instruction is designed to teach discrete reading skills...for the purpose of increasing the student's ability to follow directions or internalize data for future recall....Reading tasks on the job are different. They require the reader to be analytical, to summarize information, and to monitor one's own comprehension of the reading task. This is an interpretive approach that requires the reader to have active involvement in the reading tasks....[B]asic training in reading should focus on teaching reading processes for locating information and using higher level thinking strategies to solve problems" (Carnevale et al., 1989, p. 10).

Teachers in the Fort Worth Independent School District found significant dissimilarities between writing samples secured from the workplace and writing assignments in school. Not only are students asked to generate different kinds of writing in the workplace than they are asked to generate in schools, but the purpose, style, and direction of the writing is different. In schools, students are asked to produce essays, book reports, poetry, and stories; in the workplace, they are asked to produce reports, brochures, memos, and proposals. In school, the purpose of writing is to display mastery of knowledge, skills, and format. Students are asked to regurgitate material in as much detail as possible and to elaborate with adjectives and figurative language. In work, employees write to inform, summarize, and persuade. Their messages need to be concise and direct, relating only that which is relevant to the task at hand (FWISD, 1991c). While essays, book reports, and creative writing should certainly not be eliminated from the writing curriculum, students would benefit from learning to produce the types of documents found in the workplace but not usually written in the classroom.

Likewise, researchers have found that the math learned in school is very different from the math skills needed in the workplace. In schools, math is presented sequentially, with problems neatly organized for the students. In contrast, on-the-job math problems are never so neatly defined. They often are disorganized and full of information irrelevant to the solution.

This discontinuity that exists between school and work is not unique. A growing body of evidence suggests that school learning does not contribute directly to performance in many outside-of-school activities, nor is knowledge acquired outside of school often used to support or facilitate knowledge learned in school. Lauren Resnick, director of the Learning Research and Development Center at the University of Pittsburgh, observed fourth grade students attempting to solve math problems involving money and found that students relied on school-based arithmetic calculations or intuition and experienced-based practical solutions -- but not both. In fact, students failed to see the relationship between the two approaches. Resnick concluded that "children treat arithmetic class as a setting in which to learn rules, but are somehow discouraged from bringing to school their informally acquired knowledge about numbers . . . . Schooling is coming to look increasingly isolated from the rest of what we do . . . . Growing evidence of this kind points to the possibility that very little can be transported directly from school to out of school use" (1987b, p. 15).

Because of these transference difficulties, many experts are calling for the infusion of real life applications into academic subjects which until now have been taught in the abstract. According to Paul E. Barton, Educational Testing Service, "Experience-based learning in applied contexts is essential if students are to acquire the skills they really need" (1991, p. 50). Charles Benson, director of the National Center for Research in Vocational Education, testifying before a U.S. Senate subcommittee, stated that

> ...learning by doing is an effective instructional strategy over a wider span of the measured ability spectrum than is traditional academic instruction, based on lecture and text. Teaching theory in a practical context appears to offer much transferability from the study of instructional modules to the solving of problems in the workplace (as quoted in Pepple, 1991, p. 2).

Berryman argues that all students need "contextualized learning," and she refers to this as "vitalizing" rather than "vocationalizing" schooling (1988, pp. 23-24). She states that "intelligence and expertise are built out of interaction with the environment, not in isolation from it" (1988, p. 21).

A curriculum which unites theory and practice is generally referred to as an applied academics curriculum. Applied academics curricula not only address the transference problems but also enhance students' mastery of academic subjects by bringing relevancy into the classroom, thereby increasing the students' understanding of abstract concepts and their motivation to master them. Students who understand the practical applications for academic skills will see more clearly the value of learning them.

Thinking Skills and Personal Qualities

Thinking skills include creative thinking, decisionmaking, problem solving, knowing how to learn, and reasoning. Personal qualities include responsibility, self-esteem, interpersonal skills, self-management, and honesty. In general, there is somewhat less consensus than for basic skills on what thinking skills and personal qualities are essential to workplace success; for example, the SCANS and ASTD reports each list one or two of these skills and qualities not mentioned in the other. But again the similarities between the thinking skills and personal qualities they identify are striking. Both reports address such personal qualities as honesty, self-management, motivation, responsibility and self-esteem, and such thinking skills as problem solving, creative thinking, and learning to learn.

Mastery of the thinking skills and personal qualities is particularly critical to workplace success. In fact, many recent high school graduates must languish for years in unskilled positions solely to show career track employers that they possess such personal qualities as perseverance and reliability.

Employers have good reason to value workers who possess these thinking skills and personal qualities. As Berryman points out, the competitive workplace puts a premium on time while increasing the number of decisions that need to be made. Efficiency requires that decisions be made by the workers themselves rather than being bucked up and down the supervisory line. Consequently, workers in both higher and lower skill jobs must "deal with uncertainty, the unfamiliar, and discontinuity" (1988, p. 18). Because the competitive workplace requires quick shifts in production to meet ever-changing consumer demands, workers must know how to learn and how to organize the unfamiliar to facilitate mastery. Finally, as job responsibilities broaden and overlap, workers must learn to function collaboratively; they must have strong interpersonal skills (Berryman, 1988, pp. 18-19).

Thinking skills and personal qualities are different, but mutually dependent. Compelling evidence from cognitive research indicates that there are personal qualities which predispose people to higher order thinking. In a synthesis of work in this field, Lauren Resnick delineates the connections that have been established. Dweck and Elliot have demonstrated a link between persistence and quality of thinking; work by Covington has indicated that people who perceive ability as the result of strategic self-management are better able to "compensate for self-attributions of low initial ability" (Resnick, 1987a, p. 44). Resnick concludes that "these lines of motivation research highlight the possibilities for an important convergence between efforts aimed at teaching higher order cognitive skills and those aimed at cultivating dispositions to apply those skills" (1987a, p. 44).

Despite their importance, thinking skills and personal qualities are rarely taught in school in any systematic way. There are several reasons for this. First, thinking skills and personal qualities are harder to define and analyze than basic skills. Decades of study have resulted in considerable definition of the process of reading and the component steps necessary to the development of reading. In contrast, how do we define creative thinking? What is the sequential process that leads to the development of creative thinking skills? We have some answers, but not all; we have shadows without definition.

Another difficulty in infusing thinking skills and personal qualities into the curriculum is that they are process skills rather than content skills, and as such they do not confine themselves to subject areas in the way that the basic skills such as reading, writing, and math do. Indeed, cognitive research indicates that thinking skills and personal qualities are best taught embedded in the academic curriculum, across subject areas. Resnick states that specific content knowledge plays a critical role in the development of reasoning and thinking and questions the validity of attempts to teach thinking skills in isolation (1987a, p. 18). Common sense dictates that we do not just think, we think *about* things; we do not persevere, we persevere *at* tasks.

Also, because these skills are process based rather than content based, infusing them into the curriculum requires examining *how* we teach as much or more than *what* we teach, a considerably more difficult task. Changing what we teach can be accomplished through the addition of new curricula packages; changing how we teach requires fundamental restructuring of the classroom. Lauren Resnick delineates four discontinuities between in-school and out-of-school cognition which suggest ways in which *how* we teach should be modified (1987b, p. 16). First, school focuses on individual learning and performance, whereas thinking processes outside of school focus on shared cognition. This difference suggests that more teamwork should be fostered in school and that learning should be a more collaborative, interactive process rather than a passive process. Second, school emphasizes unaided thought, especially at test time, whereas out-of-school mental activities usually involve tool manipulation. This difference dictates that students be encouraged rather than discouraged from using calculators and other tools to assist them. Third, school cultivates symbolic or abstract thinking, whereas mental activity outside of school engages directly with objects and situations. This difference argues for greater integration between theory and practice and for more task- and project-oriented learning as opposed to grade-oriented learning. Finally, school aims to teach generalized skills and knowledge, assuming that these generalized skills can be applied to specific situations; outside of school, in contrast, situation-specific knowledge dominates. Again, this difference argues for greater integration between theory and practice and for more task-oriented learning. Berryman adds another discontinuity to this list -- "mastery of and retrieval from a defined body of structured knowledge in school versus the mastery of uncodified, emergent and evolving systems outside of school. This reality puts a premium on the ability to create structure, on knowing how to learn" (1988, p. 26).

A final difficulty in infusing thinking skills and personal qualities into the curriculum revolves around assessments of student and school performance. Most current standardized tests are multiple choice tests which assess students' mastery of factual knowledge. They do little to assess students' abilities to organize and use knowledge to solve problems and reason, nor do they assess collaborative learning. Tom King, project director for the "Break the Mold" Saturn School in Saint Paul, Minnesota, says:

> Tests measure what they were designed to measure: what goes on in a school that delivers a traditional textbook curriculum, with kids in packages of 30. They have limited usefulness in a school where kids are involved in activity-oriented, cooperative learning, out in the community, doing things with their hands and minds (as quoted in Schultz, 1992, p. 30).

Our penchant for teaching what we test requires the creation of a new generation of tests with flexible formats capable of assessing forms of thinking that recognize nuances, shades of meaning, and judgment. Performance examinations should be open-ended, problem solving exercises which encourage tool manipulation, and the results of these tests should be supplemented by other kinds of assessment information. Several projects have been initiated to design these assessments and to define the standards that will be used. Among the leading efforts is the New Standards Project conducted jointly by the National Center on Education and the Economy and the Learning Research and Development Center at the University of Pittsburgh (NCEE, 1991a). This project promotes skill acquisition through a national examination system consisting of three components: performance examinations, student group and individual projects, and portfolios of student work. Collectively, such assessments aim to demonstrate the student's mastery of and ability to apply reading, writing, listening, speaking, mathematics, communication, science, history, geography, foreign language, social science, and art skills.

Once the obstacles to infusing the thinking skills and personal qualities into the curriculum are overcome, there is clear evidence that these skills and qualities should be introduced at the early elementary school level. Resnick argues strongly that this is the single most important message of cognitive research. She says that "failure to cultivate aspects of thinking such as those listed in our working definition as higher order skills may be a source of major learning difficulties even in elementary school" (1987a, p. 8). Certainly creation of a school environment conducive to the development of the thinking skills and personal qualities must occur early on. As Berryman points out, it is unreasonable to expect that children who have spent their elementary years in a passive learning environment will suddenly, at the high school level, know how to self-regulate learning (1988, p. 20).

MegaSkills®

Originally developed by Dr. Dorothy Rich (1988), MegaSkills is used in AISD elementary schools to foster the development of thinking skills and personal qualities. The program was brought to Austin through Project A+, with training for Austin's first 82 program leaders conducted in October 1990. Austin leaders offered a series of parent workshops in 38 AISD elementary schools, three local businesses, and several nearby school districts, reaching an estimated three thousand parents in the first year. During the 1991-92 school year, under the direction of Jo Ann Farrell, the program spread to 53 elementary schools in AISD (AISD, 1991a, p. 1). By January 1992, Austin was the largest MegaSkills site in the nation.

According to AISD guidelines, each participating school should have a minimum of two trained leaders, with a goal of four trained leaders, including at least one school employee (Jo Ann Farrell, Interview, February 4, 1992). Since the program is relatively new in Austin, some schools are still working to meet these goals, while other schools have as many as 15 trained leaders. As of February 1992, there were more than 180 trained leaders in AISD's program (Jo Ann Farrell, Interview, February 4, 1992). Once a person has attended a workshop, he/she must participate in the presentation of five workshops in order to become a leader. The workshops are generally given to parents and grandparents, but leaders are encouraged to present them also to the school faculty. While the format of the workshops may differ from school to school, the series generally consists of five to eight workshops, each one to one-and-a-half hours long. The most successful programs reportedly have occurred at schools where the program has received strong backing from the principal (AISD, 1991a).

MegaSkills is a home-based, activity-driven program designed for children ages four to twelve. The program offers parents ideas and exercises to help them provide the development of skills in their children at home as part of day-to-day living activities. Parent training workshops may be conducted through the schools, companies, or churches. The parent *is* the teacher, and the school's role is very limited. Dr. Rich states that while these skills can be "reinforced in the classroom they get their power from the home" (1988, p. 3). At some Austin schools, workshops have been presented to the entire faculty, with some teaching of these skills probably incorporated into the classroom as a result. This does not change the basic premise, however, that there is neither the expectation nor the curriculum to introduce these skills systematically into the classroom.

MegaSkills is a user-friendly program, consisting of practical activities ("recipes") for parents to do with their children to foster the development of these skills. Most activities are age related; they are designated to be appropriate for children in three age groups: four-to-nine, ten-to-twelve, or four-to-twelve. The activities are both the strongest and weakest components of the program. They are the strongest component in that they are detailed enough and easy enough to follow to give parents the confidence needed to teach their children. The program recognizes that if parents are to become involved in the educational process, they must be given the tools to do so. The activities are weak in that some seem insufficiently related to the skills they were designed to teach to result in the child's mastery of them. This weakness is especially true for motivation (in which the activities primarily aim to foster interest in the commonplace, give parents alternatives to nagging, and teach children how to judge the passage of time and how to listen), initiative (in which the activities consist of interesting science experiments and activities to foster skills for organizing and classifying), and common sense (in which the activities are related to learning how to gather information, increase observation skills, and learn about time and money sense). Although Dr. Rich and the Austin leaders have supplemented some of these activities, additional review and input from Austin teachers and parents are needed if this program is to play a more central role in bridging the gap between school and work.

MegaSkills is both a program and a list of personal qualities and thinking skills to be mastered. It was never designed to be a list of skills necessary to succeed in the workplace, however, nor did it result from surveying employers. Rather, Dr. Rich promotes them as "the inner engines of learning"-- the skills that underlie all other learning (1988, back cover).

The following ten skills are the MegaSkills:

1. *Confidence* is feeling able or competent to do things. The related activities are designed to involve children in positive experiences, to promote self-respect and respect for others, and to build competence.

2. *Motivation* is wanting to do something. Those who are motivated want to do things and are eager to learn. The related activities are designed to help children gain the sense of discipline necessary to stay motivated, to replace boredom with an appreciation for the intricacies of our natural world, and to help parents find alternative methods to nagging to direct their children.

3. *Effort* is being willing to work hard and recognizing that more effort can mean better results and that there is no substitute for hard work. The related activities are designed to make the home a learning place and to help children know what effort is and how they can measure it.

4. *Responsibility* is doing what's right, being self-disciplined, knowing what you have to do, and gaining self-respect from doing it. The related activities are designed to help children feel competent and to enable them to do things for themselves and for the family.

5. *Initiative* is moving into action. It starts with generating an idea but it requires following through with action. The related activities are designed to give children the opportunities to build interest and gain practice in taking the initiative to put good ideas into practice.

6. *Perseverance* is completing what you start. It also involves recognizing that gratification need not be immediate and that you probably won't succeed the first time around. It's also the *more,* the steps that follow the initial steps. It is linked to *effort*. The related activities are ones that require a level of detail or a passage of time that encourages patience to achieve final results.

7. *Caring* is showing concern for others and learning from one another. The related activities are designed to give children practice in caring by learning to be considerate, to listen and learn from others, and to be interested in others.

8. *Teamwork* is working effectively with others. The related activities emphasize "do-it-together" tasks as opposed to "divide-the-work" tasks.

9. *Common Sense* is using good judgment. It includes seeing more than one point of view, having perspective, knowing how to gather information, being observant, and having a sense of time. The related activities are designed to promote these traits.

10. *Problem Solving* is putting what you know and what you can do into action. The recipes for problem solving are made up of two basic ingredients: (1) practice in asking and answering questions and (2) practice in making decisions (Rich, 1988).

Each of these ten skills is implicitly or explicitly included among the SCANS report's personal qualities and thinking skills needed for success in the workplace. Most are also found in the ASTD report. Sometimes the appellations are different (e.g., "caring" is subsumed under "sociability" and "confidence" is called "self-esteem" in SCANS), but the definitions are the same. Consequently, we can say with some confidence that mastery of the skills in Dr. Rich's program is essential to success in the workplace, as confirmed by the SCANS and ASTD reports.

How would the MegaSkills program fit into a full-fledged AISD program to develop the personal qualities and thinking skills necessary to succeed in work? It could be either a companion effort to or a component of a fully developed program to foster improved workplace skills in AISD students. In either approach, the program has at least three qualities that make it very important to the effort to prepare young people for the world of work:

1. It recognizes the importance of developing thinking skills and personal qualities and provides a framework for inculcating them. Since it teaches skills that are required in the workplace, it cannot fail to make the school's task easier.

2. It effectively brings parents into the educational process and has produced several unanticipated fringe benefits, including self-sustaining parent support groups.

3. It recognizes the need to start early in inculcating these skills (Jo Ann Farrell, Interview, February 4, 1992).

The MegaSkills program should be expanded and enhanced in three respects if it is to inculcate personal qualities and thinking skills to the degree necessary to bridge the gap between school and work in Austin. First, the list of skills needs to be expanded to include eleven additional thinking skills and personal qualities identified by the SCANS and/or the ASTD reports as essential to success in the workplace and not presently part of the program (SCANS, 1991; Carnevale et al., 1989):

1. *Honesty and Integrity* is the ability to know right from wrong and to act accordingly. This trait is included in the SCANS report as a desirable personal quality and also is identified by the Rochester study (NCEE, 1990) as a quality that is very important to employers.

2. *Goal Setting* is the ability to set and meet defined objectives, to plan ahead and foresee obstacles to be overcome, and to recognize performance goalposts as they are met. This skill is subsumed under *responsibility* and *self-management* in the SCANS report and under *personal management* in the ASTD report. Although it is implied under *Motivation* in MegaSkills, it is not sufficiently developed there.

3. *Self-Assessment* is the ability to know one's own capabilities and limitations and one's effect on others and to respond to feedback nondefensively. It is subsumed in the SCANS report under *self-esteem* and *self-management* and in the ASTD report under *learning to learn*.

4. *Taking Pride in Work, or Appreciating Quality*, is setting high standards for oneself and knowing when those standards have been met. It is in the ASTD report under *personal management* and also in the Rochester report (NCEE, 1990).

5. *Leadership* is the ability to influence others to act in a certain way. This trait is listed in the ASTD report under *influencing skills* and is implied in the SCANS report under *sociability*. It is closely related to *Teamwork* in MegaSkills, since leadership is best learned in teams.

6. *Learning to Learn* is the ability to recognize and use personal learning techniques and both formal and informal learning tools. A *thinking skill* in the SCANS report, the ASTD report characterizes it as the *foundation* to learning all other skills.

7. *Creative Thinking* is the ability to initiate new ideas or to combine them in new and different ways. It is included in the ASTD report under *adaptability* and in the SCANS report under *thinking skills*. While implied under *Initiative* in MegaSkills, creative thinking in the SCANS and ASTD reports refers to the ability to generate innovative ideas rather than to the ability to follow through with action.

8. *Reasoning* is a *thinking skill* in the SCANS report, where it is defined as "Discovers a rule or principle underlying the relationship between two or more objects and applies it in solving a problem."

9. *Seeing Things in the Mind's Eye* is a *thinking skill* in the SCANS report, which defines it as "Organizes and processes symbols, pictures, graphs, objects, or other information." This is a very advanced skill that is difficult to teach.

10. *Training in Personal and Career Development* is the ability to define career goals and to identify the education and training necessary to achieve them. It is listed in the ASTD report.

11. *Organizational Effectiveness* is the ability to know how to work within the confines of an organization and to understand its structure and culture. It is listed in the ASTD report.

Thus, the enhanced MegaSkills program would include

MegaSkills

1. Confidence
2. Motivation
3. Effort
4. Responsibility
5. Initiative
6. Perseverance
7. Caring
8. Teamwork
9. Commonsense
10. Problem Solving

Plus

11. Honesty and Integrity
12. Goal Setting
13. Self-Assessment
14. Appreciating Quality
15. Leadership
16. Learning to Learn

17. Creative Thinking
18. Reasoning
19. Seeing Things in the Mind's Eye
20. Training in Personal and Career Development
21. Organizational Effectiveness

Second, the MegaSkills program must be expanded to include a strong school-based component if it is to serve as part of a fully integrated system for inculcating thinking skills and personal qualities. These skills and qualifications have to become part of the AISD curriculum for at least three reasons. One, parents should not be expected to bear the sole responsibility for teaching them to their children. Often, parents who need the training most are the ones least likely to take it when offered, despite the best outreach efforts. Two, as we have already seen, these skills and qualities are best taught in context, and schools provide an important and a qualitatively different context in which to learn them. Certainly one can teach children responsibility at home by having them care for a pet, but this may be a different kind of responsibility than that necessary to complete assignments on time. Teamwork may be taught at home through do-it-together tasks, but home teams consist of parents and children; consequently, they are rarely made up of equal partners. In school, team members can be equal. Further, the decisionmaking that evolves from a team project in which a solution must be found and a grade is involved may be very different from that which goes on in a family when cleaning the house is the task. Three, a strong school-based component is essential to prepare children for the world of work because schools have an opportunity to create, by adopting an applied academics curriculum and providing a collaborative, interactive medium, a learning environment which is supportive to the development of thinking skills and personal qualities. Certainly math students will learn to "appreciate quality" better when their task is to find the extra money in a town's budget to buy a much-needed fire engine rather than to manipulate numerals and perform calculations to solve an abstract set of math problems. In the first task they will see tangible results from their efforts; in the second they will see correct or incorrect answers with no inherent meaning in the result. The need to develop problem solving strategies becomes more apparent when the task is to assume the role of a hospital administrator after a major accident when scarce resources must be allocated in innovative ways than when a missing addend must be found. Schools provide the ideal setting in which to stretch the mind; we just need to organize school learning so that it can better take advantage of this opportunity.

A third necessary addition to MegaSkills, if it is to close the gap between school and work in Austin, is to extend the program, in its enhanced form, beyond elementary school into the middle school and high school curricula. The task of preparing children for work becomes even more urgent after the age of twelve. In some ways it also becomes more feasible. For example, skills such as "seeing things in the mind's eye" may be too sophisticated to teach in the early grades. Moreover, children must learn to apply these skills in increasingly more sophisticated ways. Four-year-olds may learn to organize by sorting nails according to size, but older children need to learn to organize thoughts into paragraphs and projects into the successive tasks that need to be completed.

Integration and Conclusions

While the foundations for workplace success can be classified into three categories (basic skills, thinking skills, and personal qualities), these components are strongly interdependent. There is evidence, for example, that possession of certain personal qualities predisposes individuals to higher order thinking. Meanwhile, higher order thinking skills enable us to combine and apply the basic skills appropriately. Finally, mastering higher order thinking is impossible without an adequate knowledge base. In reality, if we are to enhance students' mastery of the skills essential to workplace success, schools must develop these skills simultaneously and in an integrated manner because they are mutually dependent and mutually reinforcing.

Fortunately, national and local reports and projects have yielded similar assessments as to what kinds of learning environments must be created in the schools to support the development of these skills. We must look not only at *what* schools teach but also at *how* they teach it. We must make the critical connection between theory and practice, between learning and doing, between vocational education and academic education because making this connection facilitates the development of basic skills, thinking skills, and personal qualities. A learning environment that is collaborative rather than individualistic, task-oriented rather than grade-oriented, and interactive rather than passive is an environment that provides opportunities for the development of all the skills essential to workplace success.

Most efforts to bridge the skills gap between school and work have recognized three components to the task: identification of workplace skills, identification of the kinds of changes that need to take place in the school to nurture students' workplace skills development, and implementation of those changes. *The message of this section is that, to a large extent, the necessary knowledge bases are already in place.* The consistency of the workplace skills identified again and again in national and local studies provides a reasonable initial set of skills around which to connect school and work in Austin. Selected interviews conducted in early 1992 with Austin employers have confirmed the reasonableness of these foundation skills (Electronics Industry Representatives, Interviews, January 31-March 5, 1992). An extensive formal survey of Austin employers is unlikely to provide any significant additional information, while seriously delaying the implementation process. An exhaustive body of knowledge which strongly indicates the direction of the changes that need to take place in the schools also already exists. Thus, the focus in Austin should be on implementation.

It is at the critical implementation stage that most efforts to unite school and work have fallen short. Too often, thoughtfully designed and well-executed surveys of the skills essential to workplace success have yielded little more than comprehensive reports that sit on shelves. Lessons from cognitive research suggesting how the classroom environment should change have also gone unheeded. Thus, the two essential knowledge bases are in place, but unused.

Possibly the efforts to unite school and work have lagged because the efforts have too diligently separated the steps and actors involved. Rather than compartmentalizing the task into three distinct and separate component parts, a more productive route may be to place implementers directly into the workplace where they can simultaneously validate workplace skills, recognize the needed school changes, and commit to making those changes. This scenario places the implementers at the center of change, which is precisely where they belong. In AISD, as in all school districts, the implementers are the classroom teachers; they ultimately determine what occurs in their classrooms. Top-down policies may dictate what teachers teach, but they cannot possibly determine how classroom learning is organized. Changing the organization of classroom learning requires the support, guidance, and ideas of the classroom teacher.

To bridge the skills gap between school and work, AISD classroom teachers must become central to the process of change. The need for this becomes even more crucial as AISD moves toward site-based management. A thoughtfully designed program of teacher internships with employers can allow teachers to grasp the salient features of workplace environments, while automatically seeing the possibilities for linking classrooms and worksites. In this way, teachers become the bridge that spans the gap between school and work. The essential elements and characteristics of such a teacher internship program are outlined in the next section.

Teacher Internships with Employers (TIE) Program

Why Teacher Internships?

Many school districts and business-education partnerships in the United States have engaged in efforts to identify the skills necessary to succeed in work and to have these skills become part of school curricula. In general, these quests have followed one path. The group has surveyed employers to determine the skills that they want their applicants to have, produced a written report on these skills, and charged the local school districts with revamping their curricula and teaching techniques to meet these newly identified needs. Although different lists of workplace skills have been identified, most contain variations of the same list. Indeed, the entry-level skills identified as crucial to workplace success by Austin employers were contained in the SCANS, ASTD, and other lists we surveyed (Electronics Industry Representatives, Interviews, January 31-March 5, 1992).

Yet accurate identification of skills does not mean that students will inevitably become endowed with them. Although teachers must be the agents of change and are charged with developing the needed skills in their students, they generally have little opportunity to experience firsthand the needs of employers. Since employees must be able to *apply* these skills, development of skills-based curricula must rely on applications. Understanding these applications is critical to effective curriculum design.

A long-term approach more effective than additional employer surveys is to establish a system in which teachers are the focal points for making these necessary curriculum changes. Through a summer internship program, teachers themselves should perform skill assessments and take responsibility for translating the needed skills, through application, into curricula. "Many current reports tell us that teamwork, problem solving, technology, and communication skills are necessary for success in industry, business, or the scientific fields. After their summer internships, (participating) teachers really believe in using teamwork and technology and integrating problem solving and communication into their courses because they have seen and experienced the need for these skills firsthand" (Farrell, 1992, p. 39). When teachers themselves are able to observe the skill needs, as well as the consequences for the employer when the needs are not met, they clearly recognize the necessity for supporting school-to-work transition.

The direct link between educators and employers established by internships eliminates the "middle" stage between needs assessment and curriculum design. Since teachers who write curricula are encouraged to share their strategies and information with other teachers, the direct teacher-employer link can prevent the resentment which sometimes occurs when teachers perceive curriculum writers as out of touch with students and the realities of the classroom.

If Austin employers and teachers do not communicate and plan directly with each other, Austin employers might legitimately ask for a guarantee that their cooperation and commitment of time would result in meaningful school changes. Austin's teachers might justifiably ask why they should take the word of an intermediary that these skills are essential or that the teaching of these skills should be a legitimate concern of the schools. Collaboration between Austin's employers and teachers that is strong, ongoing, and permanent is essential to a genuine school-to-work transition for students. Direct interaction between teachers and employers provides continual reassessment and updating of curricula, permitting the schools to keep pace with changes in the modern workplace. Only business has the expertise to imbue academics with real world applications, and only teachers have the expertise to know how to package this skill development for the classroom.

Teachers are the crucial link to connect workplace needs to the development of curricula that address the academic and career preparatory needs of students. Through a carefully structured internship program, teachers will be in the unique position to

1. inventory skills and behavioral qualities needed in the workplace;

2. develop applied, hands-on curricula for incorporating tasks, materials, and information from workplaces into classrooms;

3. change the classroom learning environment from passive to interactive, from strictly theoretical to practical, and from individual to collaborative, and to facilitate the absorption of the critical basic skills, thinking skills, and personal qualities;

4. conduct staff development programs to share information and learning materials with other school personnel who may be resistant to "outside" demands for curriculum change;

5. provide counseling support to students about career options and job and training requirements, which is especially necessary due to the increasing workload demands currently placed on school counselors; and

6. establish ongoing relationships with employers to continue to receive new information and materials to be included in curricula.

Successful Teacher Internship Programs

The Industry Initiatives for Science and Math Education (IISME) program, established at the state level in Oregon, Texas, and other states, encourages "math and science teachers to see and experience firsthand how their classroom instruction is applied in the workplace. Their summer experience in business shows them the skills needed and the equipment used by today's workers. While working in business, teachers also develop one-on-one working relationships with mentors. Together, teacher and mentor spark ideas about how to make mathematical theories and scientific principles come to life in the classroom . . ." (Business-Education Compact of Washington County, n.d., p. 2).

Washington County, Oregon, has instituted a teacher internship program with employers specifically designed to assess the needs of employers and translate that information into curriculum creation. Responding to a questionnaire at the conclusion of the program, business sponsors have made comments such as, "I felt it was important to introduce science teachers to the real world of research and relay that experience to the students; I think this was achieved," and "It was good to see that the quality programs we are using can be applied to education." Teachers responded with new teaching strategies, including the design of a business unit to teach basic skills to special education students, "stress on cooperative learning ... in math particularly with problem solving skills (because) any site-based management and self-management system requires all employees to contribute to helping solve problems that occur," real world examples in discussions about technology, stress on individual accountability for time and planning the daily workload, and, in general, attention to the "skills and attitudes ... needed in the workplace" (Business-Education Compact of Washington County, 1990, p. O-5).

In a Dayton, Ohio, teacher internship program, "teachers mentioned the importance of having students solve open-ended problems that do not have a 'set answer or solution.' Others said they would now adapt their lessons to be sure students had experience using such problem-solving techniques as determining how to structure a problem, solving non-routine problems, and finding the 'best' solution rather than 'the' solution" (Farrell, 1992, p. 39). In this way, teachers learn the necessity of developing personal traits in addition to teaching content-based academic requirements.

More than 90 percent of the teachers participating in the Texas Alliance for Science, Technology, and Mathematics Education Teachers-in-Industry program (now entitled the Texas Teacher Internship Project, or TTIP) during summer 1991 planned to incorporate "work habits, 'real-world' projects, group work, and current issues and developments" in their instructional strategies. As part of the program, interns prepare Curriculum Implementation Plans which describe the "goals, strategies, resources and evaluation methods, as well as including lesson information where applicable." Ninety-nine percent of the teachers planned to share their experiences with other teachers and the community as one of several ways to translate their increased knowledge to students (Texas Alliance for Science, Technology, and Mathematics Education, 1991, p. 4).

An internship program not only supplies the raw material and information for the development of more relevant curricula but also provides trainers, teachers who understand the requirements of the classroom and those of the workplace. This link is crucial for preparing students to respond to the challenges of work, whether they enter the workforce immediately after high school, after a training program, or after college, and for keeping participating teachers apprised of changing workplace conditions so that curricular revision keeps pace.

Motorola in Austin has established its own Teachers in Industry program, which sponsored five summer internships in 1989, 1990, and 1991 for teachers from its adopted AISD schools. Due to this program's success, it expanded to include 15 teachers in summer 1992. The company has been pleased with the effectiveness of the teacher interns in their summer positions and with their enthusiasm for translating their acquired knowledge into classroom projects and materials (Scott, Interview, March 13, 1992). The Motorola program is unique among Austin-based teacher internship programs because one of its explicit goals is to "make education more relevant to workplace needs." Particular emphasis in the selection process is placed on the intern candidates' "emphasis on their commitment to student success and personal development" (Motorola, 1991, p.1).

Limits to Effectiveness with an *Ad Hoc* Approach

Though many Austin programs are aimed at improving the collaboration between schools and employers, none systematically assesses the skills needed by Austin employers and translates those skill needs into the curriculum. There is also little or no context for communicating this information on required competencies to AISD school-level personnel, or through schools to the students.

One component of a strong curriculum is clear articulation of *why* the skills are necessary. Concrete examples from the workplace can put skill requirements in the context of job responsibilities. In Fort Worth, Project C^3 compared the purposes and types of writing at school and at work -- intended audiences, social and political considerations, conditions for deadlines, distractions, and what is valued in each setting (FWISD, 1991c). The startling contrast between writing assignments in the settings of school and work demonstrates the importance of establishing a relevant context for skills development within the schools. If students understand that they must be able to meet these demands, school becomes that much more relevant to their futures.

Texas Commissioner of Education Lionel "Skip" Meno's prescription for an improved public school system in Texas includes an outcome-based system, rather than the present process-based system (Committee on Student Learning, 1992, p. 2). This approach provides freedom for schools to design the best methods for teaching these skills to students to achieve the desired outcomes. A strong process for supporting responsive curriculum development will make attainment of these outcomes more likely. Employers can assist schools with this process by having educators experience the ways these skills are used every day in the workplace, thereby showing the relevance of acquisition of these skills to the students' futures.

Several Austin companies, including IBM and SEMATECH, have provided internships on an *ad hoc* basis for teachers, primarily teachers of college bound students in the Science Academy at Lyndon Baines Johnson High School. Although it is expected that the teachers will bring ideas generated in the company environment back to the classroom, the aim of these internships is not specifically to develop curricula.

Motorola's AISD summer internship program reaches teachers of students who are not college bound as well as those who teach students planning to attend college. This program has been continually refined to strengthen program areas that were particularly successful and to amend and provide further support in weak areas, such as the decision to designate a company mentor for each intern. The company receives numerous calls each year from teachers in schools that are not Motorola "adoptees," but Motorola cannot afford to extend support beyond the commitment to its own five adopted schools, nor is it able to afford positions for all qualified applicants from even those adopted schools at the present time (Scott, Interview, March 13, 1992).

Thus, while effective teacher internship programs exist in the Austin area, they are small and largely unconnected and do not benefit from the broad collaboration of interested parties. The potential for creating leverage effects from an Austin-wide teacher-based program for skills assessment, curriculum development, and classroom implementation has yet to be realized.

Essential Elements of a Teacher Internship Program

A Teacher Internships with Employers (TIE) program in Austin must be clearly designed and broadly supported by employers and educators if it is to be successfully implemented. Such a program has four essential elements: critical mass, selection of interns and employer-sponsors, orientation, and follow-through.

Critical mass

To generate long-term enthusiasm and support throughout one school or several schools integrated vertically (i.e., a feeder system), several teachers from one location should participate in the initial internship pilot project so they can disseminate information, provide guidance, and, very importantly, generate support among their coworkers for the necessary curriculum changes. Many teachers who entered teaching directly from college and have not held jobs outside the classroom continue to use traditional teaching methods that stress learning in isolation; students are not encouraged to learn cooperatively, and assignments are discrete tasks bearing little relation to an overall goal and a student's daily life or future plans.

Building a team of teachers within a school who understand the need to prepare students for learning beyond high school, either in a postsecondary school environment or at work, is crucial. One aware teacher can benefit his or her own students, but the ideas will catch on among most faculty only when several teachers create the critical mass and support for changing the curriculum. By the same reasoning, a concentration of intern-teachers from one vertical team (i.e., feeder system) should reinforce the acquisition of needed skills and personal characteristics in students throughout the K-12 continuum.

To achieve critical mass yet keep the initial effort manageable, a pilot TIE program should be implemented within one AISD feeder system. A minimum of six teachers from a high school, three teachers from each middle school feeder, and three teachers from each elementary school feeder should participate in the pilot. The larger number of high school teachers per school is necessary to achieve critical mass, because the high schools are much larger, with more staff, and teachers tend to be fragmented into departments (Bishop, Telephone interview, March 29, 1992). These teachers would intern in a pilot program based on the vertical structure associated with one high school; participation by an entire vertical feeder system would involve two high schools and approximately twice as many teachers.

Limiting the program to one feeder system in the first year provides an additional benefit. It allows program organizers to assess the strengths and weaknesses of the internships, curriculum development and dissemination, and results in the first year before expanding the program into additional feeder systems and eventually all AISD schools.

Selection of interns and employer-sponsors

The TIE program should involve high performance workplaces so that the resultant changes in curricula and school environments produce students prepared for the workplaces of the future. For each of its teacher interns, an employer must provide a mentor (who is not necessarily the intern's supervisor). Motorola originally had not specifically designated a mentor for each teacher but responded to evaluation comments after the first summer of the program that spoke to this need. Motorola now selects an individual with strong interpersonal skills from the department to which the teacher is assigned to serve as a mentor and resource for the teacher (Scott, Interview, March 13, 1992).

Selection of interns should emphasize the commitment of the teachers to improve the curriculum and fuel student success. Some teacher internship programs have failed in the implementation of curriculum plans because teachers have used internships as a vehicle to leave the teaching profession and begin working for their internship sponsors. To avoid this problem, interns should make a contract commitment to continue teaching for two years after the internship and to participate in all AISD follow-through activities for dissemination of information and curriculum plans to other faculty and staff. The employer should also be requested not to offer an intern a permanent company position that would interfere with that intern's teaching duties for a two-year period following the internship. Motorola has not had problems with teachers seeking to leave teaching to become permanent Motorola employees. The company attributes this to its focus on curriculum development as a goal of the internship, an emphasis on selecting educators motivated to improve their teaching, and reliance on principals for helping to select teachers who have demonstrated their commitment to serving students (Scott, Interview, March 13, 1992).

Orientation

The orientation component of a teacher internship program is more properly a cycle than a single session. First, teachers need to be apprised of the TIE program and its goals, teacher intern and employer-sponsor responsibilities, and application procedures. The coordinator for Austin Motorola's Teachers in Industry program has recommended holding orientations at each participating AISD school, with the assistance of principals, since a supportive principal is very effective in encouraging qualified teachers to apply (Scott, Interview, March 13, 1992).

Teachers who wish to apply may need assistance in preparing a resume of their skills and experience as part of the application process. A resume workshop for potential interns would help them understand how many of the skills held by successful teachers are assets in the workplace. A benefit of having employers, rather than AISD, sponsor the workshops is that they recognize more fully the potential value of having teachers as interns.

Once interns have been selected by a sponsoring employer, a training workshop should be held to prepare teachers for success at their summer jobs and to identify skills, materials, and projects that could be incorporated into their curricula. In an established program, interns from previous summers would actively assist in the orientation and training of new and potential interns.

Follow-through

Both teachers and their partner employers must follow through after the summer internship to ensure that curricula incorporating workplace skills are designed, used with students, and disseminated to other teachers.

At the conclusion of the summer internships, teachers should prepare reports detailing the important ways skills and personal traits affect quality of work and describing lesson plans, project ideas, and changes in the structure of classroom interaction (such as methods to reinforce accountability, punctuality, and attendance) that they plan to institute with their students. In Washington County, Oregon, for example, the Business-Education Compact requires this type of report, namely, a teacher's "action plan." Copies of each teacher intern's plan are distributed to the compact, the school district, and the sponsoring employer. A compact administrator reported that these action plans are effective public relations devices for participating businesses and for the program; the companies can point to concrete examples of effective teaching materials that address the skill needs of their own workers (Busch-Johnson, Telephone interview, February 3, 1992). Similarly, the Texas Alliance's TTIP requires interns to prepare curriculum implementation plans (Texas Alliance for Science, Technology, and Mathematics Education, 1991, p. 4).

The TIE program should include a staff development component; teachers who have interned should, individually or jointly, present their new ideas for curriculum changes, as well as the rationale for making those changes, to their teacher intern colleagues. If desired, their employer-mentors or other internship associates could participate in the presentation. To facilitate networking, for example, the Texas Alliance coordinates regional meetings for interns and mentors as sessions for orientation and sharing their experiences (Texas Alliance for Science, Technology, and Mathematics Education, n.d., p. 6).

The TIE program must also facilitate similar staff development sessions for sharing interns' experiences with teachers who did not participate in the program. Staff development workshops within a school have a much better chance of facilitating the transfer of instructional strategies, materials, and experience applicable to student skill development if several faculty members have themselves experienced workplace needs firsthand. Different ideas for strategies and projects from every teacher intern presenting at the workshop, as well as reinforced communication of the major needs of the workplace, is an added benefit of having a critical mass of teachers from each school as TIE participants.

Throughout the school year immediately after the summer internship, participating employers should also follow through with assistance to their former interns as the teachers return to the classroom and seek to infuse skill development applications into their curricula. Assistance could take many forms, such as visiting a teacher's classroom to make presentations, organizing worksite tours or demonstrations for students, or providing equipment, materials, project descriptions, or situational case studies that the teacher could adapt for classroom use.

The Washington County (Oregon) Compact uses a questionnaire to gather feedback on the program's successes and needs for improvement. Likewise, the TIE program will need to incorporate a follow-through program which includes not only a staff development component but also a means for feedback and assessment of both the internship experience itself and the results of incorporating development of the needed skills and personal traits into the curriculum.

Critical Characteristics of a Fully Implemented TIE Program

Employer job specifications

Employers must decide how best to use a teacher during the internship and should provide internship project descriptions in advance. Employers should consider carefully the type of position in which the teacher will be placed. The job itself should include a variety of skills that can be translated back into curricula, be supervised by a supportive mentor familiar with the goals of the TIE program, and include meaningful contact with a number of other employees to enable the intern to learn about their diverse roles and responsibilities as well as the overall structure of the organization.

To inform teachers about available internships, employer-sponsors will write a project description for each internship position offered. Each project description will include the tasks to be accomplished, skills needed, length of internship, and pay rate and be distributed to eligible teachers through the TIE program office.

Outreach to potential interns

Complete descriptions of available internships will be assembled into a packet distributed to each participating school. Brief summary descriptions will be compiled in a brochure to be distributed to each teacher, with directions for obtaining complete information. Workshops will provide teachers with additional information about benefits to and responsibilities of program participants and help them present their skills effectively in a resume format.

Outreach to potential employers

Because of the gap between the education and employment communities and the prevailing negative employer attitudes toward the public education system, potential intern sponsors need to be apprised of the skills that teachers cultivate in order to be successful, many of which are transferrable into the workplace. Employers need to be convinced that they, as well as the schools, will benefit from the TIE program. In fact, effective teachers have strong organizational, assessment, communication, and leadership skills. Motorola in Austin has recognized this and been pleased by the teachers' contributions to the company

(Motorola, 1991). Similarly, Washington County (Oregon) businesses stated in response to a follow-up questionnaire that their teacher interns "produced a quality product," "brought a fresh outlook," and were "highly organized, self-directed and thorough," and that the company obtained "excellent, capable, experienced people at reasonable cost" (Business-Education Compact of Washington County, 1990, p. O-1).

Employers may need assistance in identifying appropriate positions within their companies for the interns. Providing sample project descriptions is likely to spark ideas among employers and encourage their participation in the TIE program. For example, teacher interns can participate in a great variety of activities, including writing policy manuals; designing curricula for exhibits at zoos and museums; performing needs assessments, accounting, scheduling, or cost analysis functions; assisting with research and training; and working with engineering problems and computers.

Organizational focus

An organization or office needs to plan and coordinate TIE program activities, provide information, and troubleshoot. Tasks that need to be performed include management of funds; responses to inquiries; design and processing of project description requests, application forms, training manuals, and materials for marketing and evaluation; and arranging annual readiness programs such as a resume workshop for intern candidates and a preinternship orientation workshop to inform those teachers selected about what they are expected to do to effect skill translation and perform effectively in their summer positions. The TIE program office should sponsor annual orientation sessions for the employer supervisors as well, to communicate necessary information about TIE program goals and the needs of the teachers so that the supervisors can serve effectively as mentors. This office also should seek to include small businesses among its participating employers.

The TIE program organization should receive from each teacher intern candidate an application form, resume, and directed cover letter for each internship position for which the intern wants to be considered. The organization should keep applicant records and monitor the intern selection process, but the sponsoring employers would contact, interview, and select among candidates directly and then notify applicants and the administering organization when a selection has been made. The organization should work with employers and school representatives to determine a fair salary for interns.

Funding structure

In order to ensure that the TIE program can sustain itself, an administrative fee should be paid to the administering organization to offset (minimal) program costs. The fee could be charged to the employers on a per-hire basis and/or to the school district, or all Austin employers could be requested to support the administration of a program which will eventually be to their collective benefit.

The Washington County Compact in Oregon is funded by the employers who sponsor teacher internship positions. Participating employers pay a $250 fee per intern to the organizational entity in addition to paying the intern's salary (Busch-Johnson, Telephone interview, February 3, 1992). If an arrangement can be made with a local university to offer graduate credit to teachers for their participation in the internship, the school district could be asked to reimburse successful interns for tuition as part of its commitment to provide teacher training, thereby sharing some of the program costs. If the organizational entity were nonprofit, then companies' administrative payments would be tax deductible.

Conclusions

Austin employers have identified the enhanced basic skills (e.g., reading, writing, speaking, listening, and mathematics), thinking skills (e.g., problem solving), and personal traits (e.g., responsibility, goal setting, and teamwork) necessary for workplace success. All of these foundations (i.e., skills and personal traits) are characteristics of a successful individual, whether at work or in a high school, a training program, or a college. The Austin Teacher Internships with Employers (TIE) program will enable AISD teachers to translate the responsibilities, skills, and qualities they observe and are called upon to use at their summer jobs with employers into activities and curricula in their classrooms. This direct, ongoing collaboration between employers and educators is critical to bridging the gap between the worlds of school and work.

Career Awareness and Exploration

Ensuring the integration of essential skills and personal qualities into the regular educational preparation of Austin youths underlies successful school-to-work transition. Complementing this curricular integration should be awareness and exploration activities which provide the context for students to understand how skills taught in school translate into the skills and activities in an array of careers.

Career Awareness and Exploration: Making the Necessary Connection

In today's world, the emphasis on consumerism and commercialism leads to an increased desire by youths to enjoy the benefits associated with working and earning money. Students know they want to earn money and usually plenty of it, but they lack a clear understanding of what it takes to create a successful career and how they, as students, can begin to take responsibility for setting and pursuing career goals.

The path from childhood to high school graduation is clearly marked for students who envision a college education in their futures, and vocational education may provide direction for students who have a clear notion of their own occupational interests. For many students, however, the experience of going to school is very frustrating and alienating. The relevance of classroom instruction is often impossible to grasp, given the limited options most students envision for their own futures. In fact, one of the main reasons that students drop out of school or turn to peer groups who downplay the importance of school is that students perceive an unbridgeable gap between, on the one hand, the goals of graduating from high school and getting a good job and, on the other hand, their ability to reach these goals. Many students do not believe that their own school experiences will contribute to their future success.

Career awareness and exploration provide the necessary context for connecting school and work and making that connection relevant and attainable for every student, even those expecting to go on to college or further training before entering the labor market. Within the context of real world work and jobs, the skills, techniques, and problems of the classroom can become tangible and meaningful to all students. Career awareness encompasses a general understanding of what it means to work for a living and an appreciation for the complex and diverse society in which we live, a society with an incredible array of opportunities, experiences, jobs, and careers.

Career exploration is a vital complement to career awareness because it individualizes and personalizes the opportunities available in the world of work. Exploration of specific careers is needed to help the student understand the elements of a particular career path; the required skills, training, and education; and the potential for personal growth and professional success. Career exploration allows the student to think of different kinds of work in terms of individual preferences, likes, dislikes, talents, and weaknesses. Self-guided exploration is a vehicle for ownership and personal connectedness to future possibilities, and it is also a good reality check and compass.

Essentially, students must feel that they have an individual stake in career exploration and, indeed, a real chance to succeed. Career awareness must be infused into the regular curriculum through exposure and experience and by communicating and demonstrating the relevance of school work to life work. Career awareness can, and must, begin as early as elementary school by including general references and experiences relevant to the world of work in the regular curriculum. As students progress through the K-12 education system, broad career awareness should become more focused and individualized to provide an environment for experiential career exploration in a particular field. Teachers and professionals must work together with each other and with the students to create realistic career development resources and ensure a stimulating educational environment in which the connection between school and work is tangible. Career awareness and exploration must be expansive and inclusive in terms of careers and students. Every student must be involved in career awareness and exploration opportunities which provide information and access to a realistically broad and varied scope of careers. Finally, parents must be informed and involved participants in the awareness and exploration of their child's future, because parents are often as limited in their knowledge of career opportunities as their children.

Promising Community Approaches to Career Awareness and Exploration

The following community initiatives in career preparation for in-school youth represent a range of school-to-work strategies, from critical intervention to restructuring of the school environment.

Woodland High School (California)

Since 1985, Woodland High School has focused on career training through the integration of academic and vocational learning experiences in career clusters (or paths). The results of Woodland's restructuring have included an increase in attendance rates and average standardized test scores, a decline in suspension rates, a 38 percent reduction in the dropout rate, and an increase from 42 percent to 67 percent in the number of students going on to higher education. In addition, the school has ranked among the highest in the state in percentages of minority students entering the University of California System (Brown, 1990, pp. 3-4).

Woodland High School has achieved these results by flexibly and responsively addressing the curriculum needs of individual students. Administrators and teachers recognized the limitations of the college preparatory curriculum and addressed these limitations in the restructuring. Upon entering Woodland, students undertake a discovery process which includes aptitude and personality assessments to inform them of their career path options. Career paths offered at the high school include Business and Marketing, Industrial Technology and Engineering, and Social, Human and Governmental Services. Students are apprised of entry-level careers, semiprofessional careers, and skilled and professional careers in each path, as well as suggested community and extracurricular activities that can reinforce learning or skills in each area. As a result, each student has the information necessary to assess what must be accomplished in school in order to pursue successfully his or her career interests.

Because many of the career-related activities are taught by incorporating them into the academic core curriculum, students may switch paths and remain in the same core programs, simply pursuing activities applicable to the new career goal area. This approach also enables students to recognize the basic nature of English, science, or math skills and how they relate to any number of job possibilities and reinforces the need for competency in those areas (Brown, 1990, p. 3).

In each of the career paths, academic and vocational teachers meet as teams to plan curricula, coordinate activities, and solve problems. Because Woodland High School teachers are well informed about career options, they also can do some career counseling. School counselors have lighter burdens as a result, and each teaches a class so that teachers have additional lesson-planning time. Since most of the administrators teach as well, many members of the school staff have the opportunity to experience a different role than that for which he or she was explicitly hired. The school operation is far more flexible and responsive as a result of this cooperative approach to meeting students' needs.

Woodland High School has used federal grant money under the Carl Perkins Act and resources from Project BET (Business and Education Together), a partnership sponsored by the Woodland Chamber of Commerce, to fund its initiatives (Woodland, n.d.(a)). The school operates an evening tutorial and study center, and an in-school Learning Resource Center provides individualized tutoring, study skills presentations, and peer tutoring arrangements. Woodland High School also houses the Teen Assistance Support Center (TASC), through which counselors from various community agencies dealing with drug and alcohol awareness, hospices, jobs, social and personal problems, and suicide prevention are available to students (Woodland, n.d.(b)). Because of this accessibility of support services, students are able to meet their personal needs and be more productive in school.

In summary, Woodland High School has redefined the school mission, integrated academic and vocational education, developed a comprehensive guidance program, organized a variety of business-education partnership projects, and established career paths as a means for students to design individual academic/career plans through high school. The Woodland model was cited by the National Center for Research in Vocational Education as the most comprehensive approach to integrating vocational and academic education (Brown, 1990, Foreword). Other schools and school systems across the country are now designing plans to replicate the basic Woodland model.

Long Beach Cities in Schools (CIS)

Long Beach CIS, affiliated with the national Cities in Schools dropout prevention program, has been successful in the area of employment education. School-to-work transition and employment preparation are two major components of the Cities in Schools model, which targets at-risk, in-school youth. One very successful activity which addresses these issues involves a workplace visit but goes beyond the traditional tour of a hospital or firm. The students spend the morning shadowing an entry-level employee, typically someone young to whom they can relate. Then, in the afternoon, the students go through the entire process of applying for the type of job which they shadowed. Each student fills out an application form and then meets one-on-one with a representative from the personnel office of that workplace. The idea is not only to have a "real world" person give the students feedback and direction but also to demonstrate firsthand to them that they are capable of applying for a good job. Career exposure and a sense of personal relevancy are major outcomes of this type of activity (Dubois, Telephone interview, January 22, 1992).

Clearly, this Long Beach CIS workplace activity is only one component of a much larger and ongoing effort, but it would be easy to replicate and incorporate into other middle school and high school education-business partnerships. Business cooperation is essential, since this activity involves the contribution of resources, personnel, and time. Long Beach hospitals and firms willingly participate, however, because it is an easy way for a business to assist the schools and, at the same time, encourage the educational and behavioral preparation that the business requires in its employees.

Texas Scholars Program

The Texas Scholars Program combines two related programs developed and implemented by the Greater Longview Organization of Business and Education (GLOBE) for use in five East Texas school districts (Texas Comptroller of Public Accounts, 1991, section 1). The two programs are Great Expectations-Great Rewards, which consists of parallel presentations to eighth grade students and their parents to encourage students to take a full "on level" or above academic load during high school, and GLOBE Scholars, which provides incentives to high school students for completing these courses. While these programs do not eliminate the gap between school and work, they do provide a quick, effective, and relatively inexpensive way to begin to establish an effective partnership between the business community and the schools by educating students and their parents to the increased demands of today's competitive workforce, by establishing a connection between the courses students take in high school and the success they can expect to achieve in life, and by increasing the percentage of students who have a firm academic foundation on which they can base future learning, whether that learning occurs in an institution of higher education or in the workplace.

The program begins when two presenters from business meet with the eighth grade students at each school two-to-four weeks before the students select their ninth grade courses. The presenters and the children develop a sample budget for an individual making $18,000 per year. While initially impressed with the sum, students are dismayed to find out that after necessary expenses are paid, the individual only has $50 per month left for clothing and entertainment. They are then told that from a minimum wage, unskilled job they can expect to earn less than $9,000 per year. The presenters emphasize the relationship between the courses one takes in high school and the array of positions available in the job market. The students are presented with a variety of jobs that pay between $19,000 and $33,000 a year which require no college but do require the skills obtained through the GLOBE curriculum.

The presentation aims to shock the students. Because of the effectiveness of the presenters and the message they are carrying, it usually does. The skill of the presenter is so important to the success of the delivery that the presentation has been videotaped to permit its successful replication. A parallel presentation is made to parents so that they can also be educated as to the demands of the modern workplace and can be encouraged to use their influence on the critical choices their children are about to make.

Once in high school, the GLOBE scholars must take the following courses: 4 credits of English; 4 credits of math, including Algebra I and II and Geometry but excluding Math of Consumer Economics; 3 credits of science, including two of the following three: Biology I, Chemistry I, or Physics I; 3 credits of history and government; 2 credits of the same foreign language; and one elective credit in science, foreign language, or computer science (Texas Comptroller of Public Accounts, 1991, section 4).

If the students successfully complete these courses and maintain a C grade average, they are honored at an annual ceremony and reception in their senior year and recognized in the local and school newspapers with their names and photographs. Also, a directory of the GLOBE scholars is distributed to local businesses, who are asked to give them priority in hiring for full-time or part-time jobs.

The program has led to a dramatic increase in the percentage of students taking courses such as physics, pre-calculus, calculus, trigonometry, algebra, and chemistry in the Longview area. Because of this success, the Texas Business and Education Coalition (TBEC) is sponsoring and promoting the Texas Scholars Program throughout Texas (Stevens, Interview, August 28, 1992).

While the Texas Scholars Program encourages students to take the best of what today's curriculum has to offer, it does not attempt to enhance the current high school curriculum or to imbue it with real world applications. Also, it focuses on the academic skills that students need in the workplace but does not address the requisite personal qualities or thinking skills. To this extent, it is a starting point in enhancing the workplace skills that students need to succeed and in encouraging students to plan ahead, but it does not foster improvements in curriculum content other than those related to the quality of existing grade-level or advanced coursework.

Similarly, as a career awareness program the Texas Scholars Program has its limitations. It does effectively make the connection between what students achieve in high school and their prospects for success after high school and provides much-needed reality testing, but it does not attempt to educate fully the students as to the array of career possibilities available to them or the requirements necessary to realize those opportunities. Nevertheless, its greatest contribution may be in career awareness because it does provide students with strong incentives to think about their futures and to make critical choices in light of their career expectations. Certainly in combination with other programs, the Texas Scholars Program can be an effective career awareness approach to help bridge the gap between school and work.

WAVE in Schools

The WAVE in Schools model is another approach to integrating career awareness with education. WAVE, Inc. (Work, Achievement, Values and Education) was founded in 1969 as a private, nonprofit organization named 70001 Ltd., with a grant provided by the Thom McAn Shoe Company to develop a program to help out-of-school youth. (The program's name, 70001, came from the accounting code for Thom McAn funds.) The initial effort in the state of Delaware evolved into a national program for dropouts

(WAVE, Inc., 1991, p. 1). Over the past few years, schools have requested assistance from WAVE, Inc., in developing programs for in-school youth. In 1988, WAVE in Schools began the development of a comprehensive curriculum and a program model which focus on career awareness, employment readiness, and life skills development. The program seeks to motivate students to stay in school by addressing the sense of failure, frustration, and alienation that many young people experience, as well as the lack of purpose and direction that make school seem "worth it" today and connected to their adult lives and futures.

WAVE has several mutually reinforcing goals: to build students' self-concept, to make them feel more connected with school and peers, to improve their basic skills and academic performance, and to give them the life skills necessary to forge a successful transition into adulthood and the world of work. As part of the program, WAVE provides participating schools with special curricula, extensive teacher training, ongoing technical assistance, and much other support for student activities. The WAVE model of curriculum, training, student activities, and community outreach and participation provides valuable lessons for an integrated approach to upgrading skills, providing job-related instruction and information, and motivating students to set and reach their goals.

Three elements of the WAVE model stand out as unique components of WAVE's school-to-work initiative. First, the WAVE Leadership Association is the formal organization of the students who make up WAVE classes, which begin in the ninth grade and continue through high school graduation. The purpose of the WAVE Leadership Association is to promote competence, confidence, and positive self-concept through active participation in an affiliation group. Students become associate members of the Leadership Association, which links them with the national leadership organization. To become a charter club, students elect officers and organize monthly events such as visiting a factory or volunteering to read to residents of a senior citizen residence. The Leadership Association emphasizes the connections between school, work, and the community, promoting self-confidence and group participation. The sense of belonging and affiliation, which youths often seek through negative, or delinquent, group behavior, is redirected in the Leadership Association toward positive, responsible community activities (Matson, 1991).

Breaking Down the Barriers is a new WAVE program which brings business people and community representatives into the classroom regularly to teach the WAVE classes, which are usually elective courses. The goal is for these people to impart knowledge about their field and the workforce in general. This experience broadens students' knowledge of the world of work and expands the business person's understanding of youth and education.

Leadership Enhancement Training Seminars are out-of-school experiences for WAVE students which take place over two-to-three days, like a retreat. Activities encourage students to become more open with themselves and their peers. The exclusivity of this important component is important to fostering WAVE students' confidence and desire to achieve in the group and in school. Special activities such as this are crucial to making WAVE programs socially acceptable and desired activities. WAVE training and activities emphasize that the WAVE class or club must not be, or seem to be, a dumping ground for at-risk or problem students. On the contrary, the program emphasizes leadership qualities and setting and attaining life goals.

The effectiveness of WAVE programs has been affirmed by an independent evaluation of the nationwide program performed by the Institute for Educational Leadership, which found positive changes in attitudes, behaviors, and academic achievement for the majority of students who are in WAVE (Blakely, Telephone interview, February 20, 1992). A school wishing to implement a full WAVE program, including a regular class meeting, teacher training, materials, and support, must consider the costs for such services. A first-year WAVE program serving 100 students, including all travel, materials, and training costs, totals almost $18,000. Costs for continuation of the program after the first year are significantly reduced because curricula and materials can be reused. Moreover, the WAVE program development division is prepared to help interested schools and school systems seek out private funding sources and methods for defraying costs of the program. Investing in a program for "training the trainers" is another option for resource sharing and cost reduction which can be explored.

Although WAVE is recognized around the country as a successful approach to developing the career development skills of high school youth, especially those considered at risk of dropping out, its general applicability is limited. Even if a high school chooses to spend the money to invest in a full WAVE program, the curriculum and activities are available only to the students enrolled in the WAVE class. There is little overall effect on the general curriculum or philosophy of the school system as a whole. Therefore, WAVE does not provide a systemwide solution for in-school career development and skill enhancement. Instead, WAVE demonstrates that career exploration and a job readiness curriculum are key elements in helping students appreciate the value of their education and how it connects to their future lives.

State of Wisconsin

Wisconsin has taken a statewide school-to-work approach by developing and legislating an Education for Employment Curriculum for grades K-12. Created by the Vocational Studies Center of the University of Wisconsin-Madison, these career development resources are designed to be practical for both the teacher and the student. The teacher handbooks provide activity guides, resource materials, and student worksheets which facilitate the integration of the materials into a variety of subjects or courses. The most important characteristic of the Wisconsin curriculum is the built-in continuity. Teachers have an excellent idea about what their students have done before and what they will do in future years because they share common activity guides (Ettinger, 1991).

The sense of continuity is reinforced for the students because many of the activities require students to research and explore career issues outside of the classroom and the school. For example, at the middle school level, students develop a Career Options Jr. Student Planner. Information required for this document is specified but can be gathered by the students in a variety of ways. The planner includes a section in which the student outlines a four-year plan. This plan is intended to help the student think about what kinds of courses will be required in high school to reach his/her long-term career goals. (A list of courses would note whether the courses were graduation requirements, college preparatory, or related to a career training path.) The results of self-guided career exploration are maintained and refined as an ongoing record of each student's skills, preferences, and interests. The benefits of K-12 career development curricula are reaped by all students in the school system, college bound and non-college bound alike, and are part of the state's required curriculum.

According to Judy Ettinger of the University of Wisconsin-Madison Vocational Studies Center, who participated in the development and implementation of the curriculum, Wisconsin teachers have been very positive about the curriculum. It is easy to use, it promotes student initiative and self-guided exploration, and it helps teachers think about their own work from a new perspective (Ettinger, 1991).

Wisconsin's efforts to make career exploration and development an integrated part of regular public school curricula are useful, but they also do not go far enough. A community school-to-work initiative must engage the schools and the local business community in a dynamic relationship and an exchange of ideas and resources. A legislated statewide curriculum does little to promote such interchange beyond the efforts of individual teachers who seek out community support and involvement.

Conclusions

This overview of promising career awareness and exploration initiatives from around the country provides insight into the essential components of a systematic approach to career-related development for Austin that spans the K-12 education continuum. While there is no single prescription for success, AISD can work with the community and business sector to ensure that all students develop a meaningful understanding of the world of work and their individual potential for future success.

First and foremost, information and resources relevant to the world of work and career employment must be infused into the regular academic curricula from kindergarten through high school graduation. This integration can be achieved through various methods of applied learning in which real-world applications are used to teach basic learning concepts. Professionals can share in curriculum design, development, and teaching; teachers can simulate applications or take their students to worksites as a part of regular lessons. The possibilities for using nontraditional human and material resources are numerous. The State of Wisconsin opted for inserting a state-mandated career curriculum into the existing program of curriculum and activities. In Woodland High School's restructured learning environment, a career overlay in several professional fields provides all students with self-selected areas of focused application. The principle underlying the integration or infusion of career awareness and exploration is that school and work are connected and that the skills and concepts developed in school constitute the education foundation required for success in the world of work. Clearly, it is essential that the school-work connection be part and parcel of the regular curriculum, not added as an afterthought or footnote to lessons but demonstrated through application and experience.

Continuity is critically important in career development and exploration. Career awareness and exploration should not be reserved for students nearing graduation, for they are cumulative and evolutionary learning experiences. Indeed, it is appropriate and necessary to begin thinking and talking about the world of work and the educational paths to get there in the early grades. Career awareness for young children is not intended to track students or force career selections at an early age but to provide general information and exposure to the world of work. As students progress through the education system, general career awareness should include opportunities for individual exploration and experience in particular fields of interest. The Long Beach Cities in Schools day-long workplace visit, which includes job shadowing and an individual job application experience, is a good example of a beneficial culmination to a program of in-school career awareness and exploration activities.

As in the WAVE program, it is essential that professionals, teachers, and students work together to break down the barriers between schools and the community at large. Schools must reach out and businesses and professionals must reach in to provide meaningful career awareness and exploration partnerships. The Long Beach Cities in Schools workplace-based activity is a great example of collaboration which benefits all parties involved -- students, teachers, and businesses. Cooperative efforts are the key to sustaining and enhancing the mutually dependent relationship that exists between the schools, their students of all ages, and the communities where many of these students will eventually live and work.

Finally, teachers, counselors, and any adult called upon for advice and direction, including the parents and the principals, must know, understand, and be able to communicate the opportunities and responsibilities of the workplace. As everyone's stake and role in career awareness and exploration for all students increase, the success and comprehensiveness of the efforts increase as well. Widespread participation and interest will ensure that career awareness expands in terms of the numbers and types of careers to which students are exposed and includes all students in the Austin schools. Information and applications within different career clusters should be accessible to students and should clearly communicate the array of positions within a career path, from those requiring only high school diplomas to those available to people who seek out advanced degrees.

The following sections explore how the essential components of skill development and career awareness and exploration could be incorporated into a vision and recommendations for Austin school-to-work transition.

Vision

In November 1991, the AISD Board of Trustees adopted a five-year Strategic Plan that includes the following goal: "After exiting AISD, all individuals will be able to perform successfully at their next endeavor"

(AISD, 1992, p. 7). Through its affirmation of this objective, AISD has committed itself to achieving school-to-work transition for its students. This goal will not be easy to achieve, nor can AISD accomplish it alone.

This section offers a vision for a K-12 continuum of programming designed to improve foundation skills (i.e., enhanced basic skills, thinking skills, personal qualities, and career awareness and exploration) for Austin youths. Programming must be structured so that children begin to develop these skills at an early age and continue to improve them throughout their education. The continuum integrates skill development and career awareness and exploration efforts which have been successful in other communities with existing Austin initiatives to create a rational plan for community school-to-work transition.

A K-12 continuum approach also connects diverse community and school efforts in a meaningful framework. In the schools, individual teacher efforts are often not connected between grade levels and schools. Similarly, though many employers invest a great deal of energy and resources in education assistance, their efforts often are not focused for maximum impact.

Achieving Improved Foundation Skills

In order to achieve a context for foundation skills development in which the skills taught in schools will be the skills needed in the workplace, we must change what and how we currently teach in our schools, put teachers at the center of determining how to make these changes, and enhance the development of personal qualities at all ages through parent, teacher, and student partnerships.

Teachers must be at the center of skills identification and skills curriculum development, because they are the link between identification and effective implementation. Teachers must be treated as the professionals they are and be given the power and encouragement to make a difference in their classrooms. Through the Teacher Internships with Employers (TIE) program described earlier in this chapter, Austin teachers will be able to translate the responsibilities, skills, and qualities they observe in the workplace into activities, applications, and curricula in their students' learning environment. As one AISD special education teacher who benefitted from the Motorola Teachers in Industry program simply stated, "We've been empowered" (Motorola, 1991).

Changing what we teach means reshaping the curriculum to give greater attention to speaking and listening skills, thinking skills, and personal traits. It means raising the proficiency level for basic skills development. The enhanced basic skills, thinking skills, personal qualities, and competencies that must be taught in our schools and reinforced in our community and employment settings if Austin is to achieve successful school-to-work transition for its young people are as follows (Rich, 1988; Carnevale et al., 1989; and SCANS, 1991):

Enhanced Basic Skills

1. Reading
2. Listening
3. Math (Computational and Analytic)
4. Writing
5. Speaking

Personal Qualities and Thinking Skills

MegaSkills

1. Confidence
2. Motivation
3. Effort
4. Responsibility
5. Initiative
6. Perseverance
7. Caring
8. Teamwork
9. Commonsense
10. Problem Solving

Plus

11. Honesty and Integrity
12. Goal Setting
13. Self-Assessment
14. Appreciating Quality
15. Leadership
16. Learning to Learn
17. Creative Thinking
18. Reasoning
19. Seeing Things in Mind's Eye
20. Training in Personal and Career Development
21. Organizational Effectiveness

Competencies
(Require a combination of a knowledge base and thinking skills)

1. Resources: Student identifies, organizes, plans, and allocates them.
2. Information: Student acquires and applies necessary information.
3. Interpersonal: Student associates with others in order to achieve a common goal.
4. Systems: Student understands how system components interact to achieve goals.
5. Technology: Student effectively selects and uses appropriate technology.

Changing what we teach also means increasing the rigor of the education provided to Austin youths. This entails raising the standards from the elementary school through the high school. Higher levels of proficiency cannot be introduced at the high school level when students have not developed the foundations to perform at those levels. If the intermediate level of basic skills proficiency as defined by Fort Worth in its Project C^3 is taken as the graduation standard, for example, we must then define mastery at elementary and middle school levels to ensure that students are able to meet the higher expectations at the high school level.

In order to develop the foundation skills, we also must change how we teach, creating a classroom learning environment that provides opportunities for the development of work and life skills. Application and theory are united to facilitate learning. Learning is collaborative rather than individualistic. Students and teachers are a community of learners in which students learn in teams and are facilitated by the teacher. Learning is task-oriented rather than grade-oriented, and children take a proactive role in their learning. Changes in how we teach will necessarily change what is taught, although the reverse is not necessarily true. If we do not deliberately change how we teach, curriculum changes will not be effectively implemented.

Achieving Improved Career Awareness and Exploration

Career awareness and exploration must be infused into the regular academic curriculum from kindergarten to high school graduation to include information and resources relevant to the world of work that have not traditionally been part of the curriculum. It must be understood that career exploration is an evolutionary learning experience, progressing from exposure to awareness to exploration to focus. It must be a proactive experience in which students are treated as partners who participate and shape their own learning and exploration. Parents and school staff must be supported in their roles of developing the students' career awareness. School staff--teachers, counselors, and principals--have often been unaware of the full range of options and requirements for different levels of jobs and different career paths. Any career awareness program for students must also prepare and inform those school personnel and parents on whom the students rely for guidance. Career exploration must be expansive and inclusive in terms of both career choices and students. The array of positions within a career path receiving attention should range from those requiring advanced degrees to those available to high school graduates. All students, whether college bound or work bound, should participate together in the career exploration process.

Achieving an Improved Learning Environment

Schools have long recognized the importance of education models. They appreciate the necessity to educate youths for high performance work through learning environments in which all parts of the system work together as a community. An outcomes-based system allows freedom, with accountability, in instruction. Students learn in an interactive setting; they observe teachers, counselors, and administrators exhibiting shared responsibility and teamwork. Schools have flexibility in scheduling which allows more effective delivery of instruction. Teachers have more professional development time to collaborate with other teachers to improve the quality of instruction. An interactive relationship with the community means greater material and human resources for teachers and students, as well as the increased availability of social services for students through referral services or in-school delivery. Either way, schools recognize the problems of troubled youth, and students receive help so they can stay in school, develop their foundation skills, and seek secure employment or continued education upon graduation.

Achieving Improved Communication

The most important element of a school-to-work transition vision is the establishment of improved and ongoing communication and coordination between schools and employers. As society and the workplace change, schools also must change to meet their needs. Peter Vaill, in his book *Managing as a Performing Art: New Ideas for a World of Chaotic Change* (1989), uses "permanent white water" to describe the atmosphere in which people will live and work in the near future due to technological advances and demographic changes. In a world of "permanent white water," leaders must be developed at all levels. School, employer, parent, student, and community leaders must be in the same raft, working together to ensure that students are developing the foundations they will need to support themselves and their communities in a fast-changing workplace and world. This may mean that during some periods of the K-12 continuum one group may play a larger role than others (e.g., the schools may be responsible for a majority of skill development reforms during the elementary school years), but all groups in the raft are always communicating and helping each other produce skilled high school graduates. If the river suddenly, or over time, makes big changes or if some of the groups in the raft are forced to make major changes in their thinking on how to deal with the river, everyone in the raft must together work out new navigational plans with each other and new ways to collaborate.

Recommendations

To achieve this vision, Austin schools and employers must commit themselves to an active and ongoing partnership in which AISD teachers are the focal point for identifying the foundations for skill development and career awareness, translating them into curricula, and fostering their development in all AISD students. Teachers must be the crucial connection between workplace needs and students' academic and career preparation. The key to the success of such a school-to-work transition partnership is a Teacher Internship with Employers (TIE) program with the essential elements and critical characteristics described earlier in this chapter.

Also central to the achievement of the vision is a strong and visible community-wide commitment to the critical importance of nurturing and enhancing students' basic skills, thinking skills, personal qualities, and career awareness and exploration throughout the K-12 continuum. While existing Austin programs partially address these student needs, greater attention must be given to improving current initiatives and linking them more effectively with each other.

The recommendations that follow reflect this teacher-centered, foundations-centered context for school-to-work transition. In view of AISD's move toward greater site-based management, they are presented in terms of the school district's three levels of education: elementary schools, middle schools, and high schools.

Elementary School Level

Elementary school children arrive at school eager and expectant, only to discover that school is unlike anything that they have ever experienced. They are expected to forget everything they have learned in the outside world and start learning anew in the context of school.

Rather than force students into a completely different context of learning, however, we should teach them in ways that relate to their real world experiences. Teachers should build on what the elementary child knows; previous experience should serve as the foundation for the development of basic skills, thinking skills, and personal qualities. The relationships between experience and school-based learning must be fostered and strengthened in both directions.

Even in the earliest grades it is critical that real world applications be included in curricula so that children understand the connection between their school courses and daily life and work. Why should measurement be taught abstractly, for example, when it easily could be taught from the perspective of an architect, carpenter, nurse, or pharmacist? Similarly, group learning environments in school can often be more effective than individual assignments in enhancing children's foundation skills such as problem solving, teamwork, confidence, responsibility, creative thinking, and leadership.

Elementary teachers are responsible for making the classroom environment conducive to both academic and applied learning, in group settings as well as individually. In addition, they should encourage their students, in a low-key way, to think about alternative career opportunities. For example, when a class takes a field trip to Zachary Scott Theater, the teachers could ask their students, "Who do you think built and designed that set?" or "How do you think that actress learned to sing and dance that well?"

Parental involvement in the education process is especially vital at this level and should be continued and expanded through a broad foundation skills program based on the MegaSkills program model. Parents should know what their children are doing in school and reinforce the connection between in-school and out-of-school learning. For example, parents can ask their children to help them measure when cooking or working on home repairs and to help with grocery shopping by comparing prices and making informed choices. Career awareness should be fostered during elementary school years, as should be the positive value of books and reading.

Employers' most valuable contribution at this level is to provide internship experiences for teachers. In addition, they should assist teachers with the development of real world applications and curricular materials. For example, the health care industry might prepare lesson packages which demonstrate foundation skills and career awareness and are taught by health care industry employees. One lesson might be on measurement, and a lab technician might bring beakers, thermometers, scales, and other lab instruments to the classroom not only to help students learn what measurement is but also to demonstrate how measurement is used in the world of work. These types of school-employer collaboration provide an introductory level of career exposure to elementary school students in an applied learning environment.

Middle School Level

The middle school student is very insecure. Peer pressure and peer acceptance mean everything at this age. Teamwork and collaboration must be introduced prior to middle school so students have experience working interactively. Collaboration serves two goals in that it develops foundation skills and also provides peer groups in which students can learn from each other. Excitable, creative, and eager to explore, early adolescents require a learning environment that is participative and action oriented as they seek to meet their own expectations through peers.

At the middle school level, foundation skills development continues through changes in what we teach, how we teach, and the learning environment. In addition, however, career awareness and exploration should be more systematically designed and presented as a part of the school curriculum. In middle school, students must begin to explore future career options. It is at this level that they must gain the knowledge to make critical decisions about their high school courses in light of their emerging career interests.

We recommend the creation of a career exploration course that is a required part of the AISD middle school curriculum. The course would be interactive, collaborative, and task-oriented and would include at least five components: Gettin' Down to Business visits, Texas Scholars Program presentations, occupational cluster discussions, discussions of college requirements and alternative high school learning and training paths (see chapter 8), and the initial development of student records of activities, interests, and plans (see chapter 7).

During the 1991-92 school year, the Gettin' Down to Business program served students in three Austin middle schools who have been identified as "at-risk" by educating them about their future career and employment opportunities through education. In the 1992-93 school year the program is being expanded to include eight AISD middle schools and one Del Valle middle school. We recommend that Gettin' Down to Business be expanded, with the cooperation and coordination of AISD and the Greater Austin Chamber of Commerce, to provide job-shadowing experiences for all Austin middle school youth through the proposed career exploration course. Each year, at least three workplace visits to different career environments would be planned as the culmination of studying various employment settings and career clusters. Student experiences would be discussed and drawn upon by the teachers to reinforce what students are already learning about the world of work and to encourage active career exploration. During the workplace visits, employers would present an array of employment opportunities, salaries, and requirements, as well as positive and negative aspects of that career area. If more time is needed, perhaps some of the workplace visits could be arranged to take place during the summer.

We recommend that AISD adopt the Texas Scholars Program and work with the business community to initiate its presentations for all eighth grade students. Through an employment and life awareness format, students would be encouraged to sign up for challenging courses in high school and to understand how decisions made in middle school can affect the rest of their lives. In the presentations, charismatic employers use shock and common sense techniques to demonstrate the economic realities of today's world and the need for students to take responsibility for their own lives by achieving in school. The objective is to have students become inspired to take the difficult courses in high school because they choose to, not because they have to. Parents must hear the program presentation separately, but simultaneously, to spark discussion at home and to become advocates who will further encourage their children to sign up for challenging courses in high school. Typically, presentations are closely followed by ninth grade course registration. The effectiveness of presenters is absolutely essential to the success of this program. Employers must find people who can fill the role of a motivational speaker. A training video available from the Texas Business and Education Coalition also could be used.

Discussions about occupational clusters should be an important element of the career exploration course. Representatives from diverse employers in the Austin area would lead conversations about occupational opportunities in their respective fields. Students would be given assignments to explore in greater depth various career clusters, especially those with the greatest growth potential in the Austin area. Discussions of alternative high school learning and training options (e.g., tech prep, youth apprenticeships, cooperative education) and postsecondary education opportunities and requirements (e.g., entrance exams, scholarships) would complement the career cluster discussions.

The career exploration course also should include an opportunity for students to integrate and personalize the various course components. Each student should begin to develop a record of academic and career achievements, interests, activities, and plans, perhaps similar to the information included in the State of Wisconsin's Career Options Jr. Student Planner. The records should include a four-year plan for courses the student would need to take in high school to pursue his or her goals and would be maintained and updated as the students progressed through high school. In this way, students gain greater ownership of and responsibility for their career and education plans.

For the required career exploration course to be successful, students must actively participate. Teachers, principals, and parents must understand the rationale for the course and enthusiastically support its inclusion in the middle school curriculum. Schools must develop the career exploration course in coordination with the employer community to ensure that students will be able to make informed decisions in high school as they move toward a career focus. Parents must inform themselves of career opportunities and support student career exploration; actively participate in the Texas Scholars Program to encourage students to challenge and prepare themselves by signing up for the difficult courses; and reinforce the information detailing the career opportunities and expectations their children receive during their Gettin' Down to Business workplace visits.

Employers must continue their support of teacher internships and curriculum reform so that enhancement of foundation skills continues to occur in the classroom. They also should support Gettin' Down to Business visits at the level necessary to accommodate all middle schools, as well as select their most charismatic representatives to serve as Texas Scholars Program presenters.

High School Level

High school represents a critical point in the lives of students. They approach the end of compulsory education with both excitement and trepidation. Career exploration initiatives at this level help to allay high school students' concerns about the future by demystifying the world of work. Moreover, developing their foundation skills and workplace competencies arms them with the confidence and self-assurance necessary to succeed in work and in school.

Career Cluster Focus

Career-related education at the high school level should be more focused than at the middle school level to help AISD students articulate and achieve their personal goals and plans. While middle school students should explore diverse career clusters, high school students are more anxious to explore in depth one cluster, even though their career interests may later change. These students should have the opportunity to attend high schools which provide a career context for learning. These could be single career-oriented academies, schools which house career-oriented academies (i.e., "schools within schools"), magnet schools, or other models. Such learning environments would give added meaning to the students' education. Students could follow a college, tech prep, or other learning and training path; each would have a solid academic core appropriate to the career cluster to give students the foundation to advance to various positions within the cluster and to switch to other related clusters if desired. Teachers would intern in workplaces related to the clusters in which they teach so that they become competent facilitators able to counsel students effectively. Adopt-A-School employers at the high school level would be matched with schools by career cluster.

High Expectations

The High Expectations program currently provides high school graduates who have no immediate plans for full-time postsecondary education an opportunity for meaningful employment upon graduation, provided that participating students meet specified school attendance, grade-point average, and workshop attendance requirements. We recommend that the program be continued and expanded to meet additional goals.

The integrity of the High Expectations agreement between students, schools, and employers is paramount. Student requirements must be strictly enforced and increased to more demanding levels over time. Eventually, course requirements matching the Texas Scholars Program requirements should be implemented to ensure that when High Expectations students graduate, they will have the skills necessary to succeed in meaningful employment. Schools and teachers should strictly interpret and enforce these program requirements, while at the same time encouraging students to meet them and providing mentors or peer tutoring. Teachers should be advocates of the program to reinforce achievement and encourage participation among their students. Employers must provide jobs with career opportunities to high school graduates meeting the prescribed criteria. Everyone involved in the High Expectations program must work to meet their commitments to ensure that, in the long term, schools achieve higher attendance rates and lower dropout rates, employers benefit from competent employees, and students receive meaningful employment. High Expectations participants who meet the prescribed criteria should develop and maintain current learning and training records for use by employers for preferential hiring.

The High Expectations program should provide "hands on" learning experiences, including challenging monthly career awareness and career action workshops for participants. To help students enhance their career exploration process and focus their career goals more clearly, the workshop series should begin with an aptitude and occupational interest testing session. For example, the $15 per person test administered by Adult Career Exploration Services (ACES) at Austin Community College would appear to be an excellent way to empower students with the knowledge of their aptitudes. A subsequent workshop session should provide students individual assistance in assessing their ACES test results and determining a next step in each student's self- and career-exploration process.

During the school year, participating students should be grouped by similar career interests and encouraged to develop leadership associations (similar to those established by the WAVE program) organized around their career clusters. (These associations would complement such existing groups as the Future Teachers of America, the Future Farmers of America, and the Vocational Industrial Clubs of America.) Students would have assignments and be responsible for exploring their career clusters, as well as planning community speakers and group activities with the help of their guidance teachers. Students could participate in several associations, if they wish. In the spring, when students have thought more about their interests and have more career-related activities to include in their resumes, one or more resume writing and job interview workshops should be scheduled.

Finally, the High Expectations program should include an intense job-shadowing experience, similar to that of the Long Beach Cities in Schools program but at the high school level. Associated with this experience could be an assignment requiring a visit to ACES or the Texas Employment Agency, a review of the classified ads in local newspapers, and the use of occupational information databases. Teaching students how to take responsibility for their own career exploration as well as helping them learn how to locate the information and guidelines they would need to find a job if they are unemployed is critical at this stage.

Texas Scholars Program

Consistent with one of the middle school level recommendations above, a Texas Scholars Program should be implemented in AISD high schools. Students who continue to achieve in the challenging course requirements of the program would be rewarded through scholarship banquets, recognition in resume booklets sent to Austin employers for summer and permanent employment, media coverage, and the like.

Career Fair

AISD, in conjunction with area employers, should organize an annual district-wide career fair each spring to connect students seeking employment after graduation with employers willing to hire high school graduates. The career fair should be all-inclusive in terms of the students allowed to participate; however, High Expectations and Texas Scholars Program students should be expected to have current learning and training records or other useful documentation of their school, work, and community achievements (see chapter 8).

Career Counseling

AISD must begin to provide improved career counseling to its high school students. In a 1991 survey of former AISD students, only 3 percent reported receiving help from their high school counselors in looking for a job (AISD, 1991d). Students who plan to work immediately after school should receive assistance in their job search. Schools need counselors, community volunteers, and teachers equipped to assist students in their career search. Teachers who have completed internships with Austin employers could provide leadership in this regard.

Austin needs a community career center where students, after school and on weekends, could explore career interests and opportunities alone or with their parents. The center could stock information on community colleges, technical institutes, and universities, as well as on occupations and careers. If the career center were combined with a dropout recovery center and training program, it could possibly qualify for federal funding under the proposed "High Skills, Competitive Workforce Act" (see chapter 3) as a Youth Opportunity Center. To accommodate all interested students, the center should be located near a Capital Metro bus stop. The center also could be introduced to middle and high school students through a "CareerMobile," which would stimulate awareness of career planning by visiting schools on a regular basis and serving as an in-school resource.

K-12 Education-Business Partnerships

The Adopt-A-School Program, Business-Education Executive Partnership Program, and various mentoring programs have an opportunity, through a more closely integrated school-to-work approach, to improve their outcomes and enhance their effectiveness across the K-12 education continuum.

Austin Adopt-A-School Program support is essential for successful school-to-work transition because it is the only AISD-employer program with community-wide employer participation. Adopt-A-School's nine objectives--attendance incentives, dropout prevention, mentoring, academic enrichment, cultural enrichment, improvement of facilities, parent training, staff recognition, and teacher assistance--are consistent with a school-to-work focus, as are its strong school-employer partnerships. To enhance the school-to-work transition effectiveness of the program even more, the Greater Austin Chamber of Commerce and AISD should jointly develop guidelines to aid schools and their Adopt-A-School partners in identifying resources, services, programs, and opportunities of greatest benefit to students in the development of their basic skills, thinking skills, personal qualities, and career awareness.

The Business-Education Executive Partnership Program brings AISD administrators and business executives together to discuss issues affecting both groups. This school-employer interaction provides fertile ground for addressing and resolving school-to-work transition issues. Collective problem solving in this environment is essential. Substantial benefits could come from an expansion of this forum to include more executive-principal partnerships, since the teacher support and changes in school environment necessary to promote school-to-work program success will not occur without the support of the school principals. Additionally, productive partnerships may be formed between school counselors and human resource executives.

Austin mentoring programs can enhance and be enhanced by a school-to-work focus when mentors tutor, develop self-esteem, provide job-shadowing experiences for their students, and otherwise take steps to keep young people in school. At the high school level, especially, mentors should be matched with students based on occupational interest. For mentoring programs which are focused on dropout prevention, we recommend the development of an expanded and more useful Mentor Resource Handbook than currently exists. Many current mentors complain that they do not know what to do with their students other than to help them with their homework in the school library once a week. In many cases, they are not allowed to do more, but an improved resource handbook would give them clearer guidance on AISD's policies on mentoring (e.g., rules about leaving a campus with your students), what to talk about (e.g., breaking the ice, talking about your job), the importance of developing a one-on-one relationship rather than frequently sending a coworker in your place, how to assist in the development of the student's personal traits (e.g., stressing punctuality), and more. The goal would be to help the mentor feel less isolated and better able to serve effectively as a resource for the student.

The Austin A+ Coalition Design Team's America 2000 proposal (1992) for restructured schools provides a model for school-to-work transition across the K-12 continuum. It represents a long-term strategy for implementing school-to-work transition in Austin and illustrates the dramatic school system changes which will be necessary for reform. At the same time, the short-term recommendations in our project report are consistent with the proposal's framework. All recommended employer-education partnerships in our report support the transformed schools and occupational cluster learning envisioned in this America 2000 proposal. The TIE program could be used to develop initial curricula for occupationally clustered schools and to maintain the communication and interaction at all school levels. Career exploration would be absolutely necessary at the middle school level, considering the decisions that must be made in an occupationally clustered high school. A job collaborative agreement would be more focused as there would be several agreements organized around each occupational cluster. Employers could focus their workshops and recruitment efforts on fewer schools. Career counseling would occur naturally as students' courses are taught around occupational clusters and community representatives serve as counselors. Adopt-A-School partners would adopt schools based on occupational clusters at the high school level, while the basis for adoption at the elementary school level likely would be geography or the importance of having each partner's adopted elementary, middle, and high schools in the same vertically integrated feeder system.

Austin's America 2000 proposal defines well a high performance work environment for learning. Learning cores allow interactive, supported learning. Flexible scheduling, team teaching, and professional development time ensure that teachers will have the freedom to instruct students individually. In-school and referral social services delivery ensures that students arrive at school ready to learn, healthy, drug-free or among other students working through a "detox" process, less frequently pregnant, and with a connection to day care facilities if they have teen parenting support needs. By being helped to cope with their problems now, to achieve an education, and to plan their lives, these students are more likely to have an opportunity to work as productive citizens in their communities throughout their lives.

Conclusions

Everyone in Austin benefits from successful school-to-work transition programs. They decrease school dropout rates, educate the workforce, decrease employer training costs, decrease community problems, enrich the community's economy, and improve educators' teaching environments. At the same time, students, school personnel (including trustees, administrators, counselors, and teachers), employers, parents, and community leaders must work together to maintain partnerships through which Austin youths achieve a smooth school-to-work transition.

Students at all grade levels must assume responsibility for their future and take an active role in their education. They must become participatory learners and educators of each other.

AISD needs to identify, publicly and frequently, school-to-work transition as a district priority. This emphasis offers AISD a unique opportunity to mobilize the entire Austin community to educate students for the 21st century. Schools must restructure themselves to accommodate today's students and their educational needs. Schools must establish high performance learning environments, which will allow teachers time for professional development and team-teaching, and a flexible delivery of instruction. Schools must change *what* and *how* they teach. They must collaborate with the community and employers to teach through applied learning. Teachers must assume the role of facilitators rather than inculcators; they must work as professionals to meet the needs of individual students, as well as to produce responsible students who can meet the needs of the community.

Employers in Austin must realize the importance of educated youth to their operations. They should provide material and human resources to imbue academics with real world applications, as well as teacher internships to promote curriculum development and career awareness among students and teaching professionals. Employers should actively seek to hire qualified students directly out of high school into career-relevant positions. They must work with AISD administrators to ensure that schools will continue to change with society and foster an ongoing relationship with schools and teachers to inform them of changes in the workplace.

Parents must be encouraged to identify ways to involve themselves with their children and to share responsibility for their education. They must become aware of career opportunities and support their children's personal career exploration. They must support achievement in AISD schools and be actively involved with their children's teachers to maintain awareness of their progress in the classroom. Parents should avail themselves of enhanced MegaSkills training and reinforce skills development in school. They should stop making excuses for their children and place greater emphasis on responsibility. Teachers are expected to serve as role models for their students, yet parents must realize that they serve as even more direct role models for their children and should behave as they expect their children to behave. If they expect their children to be punctual in the workplace, for example, they should ensure that their children get to school on time.

Collectively, the Austin community must realize that a strong and effective education system can dramatically improve the long-term quality of life and work in our city. Investment in youth will pay off in the future because education is Austin's best hope for sustained economic growth. The recommendations in this chapter and the two chapters that follow will help the Austin community reach this goal.

Chapter 7. Learning and Training Records (LTRs) and Career Passports

Rationale

Current high school student records (e.g., transcripts and diplomas) are rarely used by potential employers of high school students and graduates when they make hiring decisions. First, employers frequently are unable to obtain, on a timely basis, useful information on student skills, proficiencies, and accomplishments, whether academic or personal. For this reason, even though good grades and standardized test scores correlate strongly with employee productivity, academic performance in high school has almost no bearing on wage rates or employment prospects immediately after high school (Bishop, 1989, p. 7). The results of a 1987 unpublished National Federation of Independent Business (NFIB) survey of its member firms show, for example, that transcripts were obtained in only 13.7 percent of hiring decisions of students with 12 or fewer years of school (Bishop, 1989, p. 8). Although federal law requires high schools to release transcripts with students' permission, few schools respond to requests -- and those that do respond, respond so slowly as to make the transcripts useless in hiring decisions. The low reliability of self-reported data led only 16 percent of NFIB employers to request high school grade-point averages. Using recommendations of teachers was even less common, occurring only 5.5 percent of the time (Bishop, 1989, p. 8).

> Clearly, hiring selections and starting wage rates often do not reflect the competencies and abilities students have developed in school. Instead, hiring decisions are based on observable characteristics (such as years of schooling and field of study) that serve as signals for the competencies the employer cannot observe directly (Bishop, 1989, p. 8).

Second, the information in current high school records often is insufficiently comprehensive or relevant for employers, who are as interested in students' "soft skills" (i.e., thinking skills and personal qualities) as in their academic skills when making hiring decisions. In a survey of more than 2,000 independent businesses, for example, "reading, writing, math, and reasoning ability" ranked fifth on a list of six abilities employers look for when hiring (Bishop, 1989, p. 7). In Austin, one major employer identified enthusiasm, attendance, a diploma, effective group skills, and cooperation as the five desirable attributes of a "good applicant," while another employer stated he considered a positive attitude, attendance, team work, and loyalty to be the traits of utmost importance (Electronics Industry Representatives, Interviews, January 31-March 5, 1992).

The fact that students' achievement and hard work are so poorly communicated to employers means non-college bound high school students have little motivation to achieve, or even to graduate. "[M]ost students realize few benefits from working hard while in [high] school," Bishop states, because "[t]he labor market fails to reward effort and achievement in high school...[and] most see very little connection between how much they learn and their future success in the labor market." If this problem is not addressed, he continues, "[t]he whole community loses because the work force is less efficient, and it becomes difficult to attract new industry. Competitiveness deteriorates and the nation's standard of living declines" (Bishop, 1989, pp. 7, 9).

The three basic methods currently used to communicate high school achievement in Austin are diplomas, transcripts, and resumes. Diplomas are helpful as a tool for documentation. Many employers in the Austin area, as well as colleges and universities, require proof that a student is in fact a high school graduate. The achievement of a diploma in Austin indicates a passing score on the TAAS exam, completion of the required credits with a passing grade, and the minimum acceptable attendance record. However, the diploma does not distinguish the high achiever from the low achiever. It shows no record of a student's dependability, areas of expertise, participation within the school or community, or responsibilities undertaken to complement high school academics. Although it is the most commonly accessed high school document, it is a document of minimum standards and gives no motivation for students to be high achievers.

The transcript offers a detailed, well-documented list of courses taken in high school and the level of achievement reached compared to fellow classmates. It reflects the difficulty of courses taken by the student and whether honors or vocational courses were taken; the transcript also reflects academic and vocational areas of expertise. There are, however, some problems and complications associated with the transcript. First of all, it is difficult for employers to access. The transcript has become an established part of the college application process but is rarely used by employers because of the difficulties they experience in obtaining it in a timely manner. In addition, there also are difficulties in interpreting the information on the transcript. There are inconsistencies in grading systems. Some schools use a four-point grading system, for example, while others use a five-point system. In some schools, honors courses are given more weight than non-honors courses.

Making a resume is a common project in 11th and 12th grade English classes. The resume format is the usual method of presenting credentials to employers. It focuses primarily on employment experience. Because of the academic emphasis of a high school student's achievements, however, the resume format does not allow recent graduates to present themselves in the most flattering matter. It highlights their deficiencies more than their strengths. Most high school students do not have a significant employment record, or else they have a record of low-skill positions.

Austin leaders now recognize that labor market opportunities and rewards must be linked more directly with high school achievement. The AISD Strategic Plan for 1992-1997 adopted by the Board of Trustees in November 1991 clearly addresses this concern:

> All high school graduates shall have a portfolio, documenting effectively their accomplishments for use in applying for jobs and further education. Such portfolios will include evidence of advanced achievements, all documents indicating the students' performance on standardized examinations, including national ones, certificates indicating community service, and the names of teachers and counselors and others who can be contacted for recommendations (AISD, 1992, p. 11).

Austin's February 1992 proposal to the New American Schools Development Corporation reaffirms Austin's commitment to developing portfolios and other credentials that facilitate students' transitions from high school to work and college (A+ Coalition Design Team, 1992).

Promising Initiatives in Other Localities

This section examines several means of documenting student education and employment in five other localities. Three of the five localities examined have an affiliation with the American Business Conference (ABC), composed of 100 chief executives of America's most successful, midsize, high-growth companies. In September 1990, ABC's Education Task Force initiated THE VITAL LINK to foster an effective and systematic network of communication between business and employment-bound high school students. THE VITAL LINK challenges businesses, educators, students, and the community in each of its demonstration sites to define a local plan of action whose components include the development of a portfolio or passport (ABC, n.d.(a)).

A student portfolio is a cumulative compilation of the student's noteworthy projects and accomplishments (individual as well as group) and reflects the student's development relative to foundation skills, community service, employment experience, and other areas useful for self-assessment and for student learning. A (career) passport is a concise summary statement of a student's portfolio that documents achievements and facilitates school-to-work and school-to-school transition.

Fort Worth Independent School District Portfolio Pilot Program

The Fort Worth Independent School District (FWISD), as a demonstration site in THE VITAL LINK project, is currently piloting a portfolio system that would follow students from kindergarten through high school graduation. (Additional information on the FWISD Project C^3, of which this ABC initiative is a part, is provided in chapters 3 and 6.) Eventually, each student will have a portfolio that reflects the breadth and depth of his/her academic accomplishments in specified areas and that includes grades, teacher recommendations, test scores, work history, performance samples, extracurricular activity, and the like (ABC, n.d.(b)).

A portfolio of work from each student's English classes spanning grades K-12 will be fully standardized in the 1992-93 school year. The K-5 portfolio was first introduced, in a standardized form, in the 1988-89 school year; the high school portfolio was standardized for the 1990-91 school year (Lewis, Telephone interview, May 11, 1992). The English portfolio for a given school year is a compilation of all student writing during that year, as well as teacher assessments and self-evaluations of the pieces. At the end of each year, either the teacher or the student sifts through the works, keeping in the portfolio for the next year only those items most reflective of the student's abilities and the evaluations. Upon high school graduation, the student takes the English portfolio with her/him. It serves as an indication of the progress achieved throughout the years of schooling, as well as a resource to draw from when presenting personal abilities to universities and potential employers.

Beginning with the 1991-92 school year, math, social studies, and science portfolio models also were piloted in the FWISD schools. The goal of the overall pilot effort is to provide guidelines for portfolio development in each area of study. These will consist of methods for incorporating portfolio compilation into classroom activities through designing projects to include in the portfolios, updating materials, and revising entries. Each student's collection of portfolios is to be stored in boxes in the student's classroom; the student will be able to access them at any time but may not remove them from the room.

Since the Fort Worth pilot program is in its early stages, no solid results or observations have yet been compiled. However, according to Dr. Sally Hampton, who is directing the FWISD portfolio program, there has been much positive reaction from students with regard to the portfolio process (Telephone interview, February 12, 1992). In a 1991-92 high school English class, for example, two weeks were spent updating each student's portfolio and providing a rationale for the changes. A number of students viewed it as one of their greatest learning experiences. It gave students an opportunity to look closely at themselves and their progress. In a structured classroom format they were given the liberty to demonstrate their abilities in ways they felt would be most constructive for personal progress. Indeed, Dr. Hampton regards the portfolio process as an important way for students to take their education into their own hands (Telephone interview, February 12, 1992).

The portfolio approach has been most positively received by FWISD high school students when presented as an effective connection between conceptual personal goals and their attainment. Student reaction was very positive when they found out that having portfolios could lead to preferential hiring and also supplement college applications.

During the 1992-93 school year, FWISD secondary school students will interview employers to identify what the latter would like to see included in portfolios, especially by the senior year, and what portfolio presentation format would be most helpful for them. The goal, for students as well as the school district, is to learn about the perspectives and information needs of employers and to continue to seek a mutual understanding of the differences between the working world and the education world and how best to bridge this gap.

Prince George's County (Maryland) Guaranteed Graduate Program

The program for guaranteeing graduates implemented in Prince George's County (Maryland) in 1986 has since been replicated in school districts in Colorado, New Jersey, and other states. The goal of the program is to aid qualifying students in finding employment after graduation by providing them a school-sponsored "insurance policy" guaranteeing their basic and workplace skills. An employer hiring a qualifying student and then finding that the student has a skills deficiency has the option of returning the graduate to the school district for further education to remedy the deficiency at no cost to the employer.

The Prince George's County program identifies seven basic and workplace skills categories. The basic skills categories are reading, writing, computation, and oral communication. The workplace skills categories are personal work habits and attitudes, interpersonal relationships, and reasoning and problem solving (Prince George's County Public Schools, 1992). Each of the categories includes several related skills. Basic skills are evaluated through scores on the State of Maryland basic skills test, an exam that all students must pass to graduate from high school. With regard to the workplace competencies, 43 courses offered in the high school curriculum were determined by the district to teach all of the 21 skills which fall within the three categories of workplace skills. If a student passes the state basic skills test and one of the 43 acceptable courses with a grade of C or better, then upon high school graduation he/she is eligible to be considered for a guaranteed graduate card.

In order to make the process of selecting qualifying students an efficient one, the school district designed a computer program that targets qualifying graduating seniors in the student database. If a student meets the basic criteria, a guaranteed graduate card is printed out for him/her and forwarded to the student's high school. At each high school, a selection board composed of a least one administrator and a combination of teachers, guidance counselors, and other school staff (e.g., cafeteria and custodial staff) who have direct contact with the students evaluates the character of the identified students to determine if they deserve the guarantee. The evaluation is a subjective one, based on a student's behavioral record, participation in school activities, and attendance. Usually one to two eligible seniors in each high school are denied a guarantee, most commonly for behavioral reasons or absenteeism. If the school denies a student the certificate, the school must submit a written statement of justification to the district office.

The implementation of this Prince George's County program has four parts:

1. development of the basic process and literature;
2. design of a computer program to manage the system;
3. creation of computer-generated guarantee cards; and
4. promotion of community awareness of the program
   (Brown, Telephone interview, February 12, 1992).

The first three parts were completed by spring 1992; Prince George's County is currently working on part four of the process. Initial contact was made with the local business community when compiling the list of workplace skills. The list of skills was developed as a joint effort between school district staff and local businesses. The district is now promoting its program to local employers. This program has been weak with regard to student follow-up, however. The district is working on a tracking system to monitor student post-graduation employment to see if the skills guarantee is helping students obtain employment. The most feasible tracking idea being considered is to access the current employment status of students through social security data; however, significant progress has not yet been made (Brown, Telephone interview, February 12, 1992).

In the program's six years of operation, there has been one "reality check" to see how students with the guarantee perform on the job and if the guarantee actually does assist in employment. In 1989, 400 Prince George's County work/study students were tracked after graduation. The district asked the employers to evaluate the students who were employed. Nineteen of the students were sent back to the district for additional training, primarily for reasons of attitude and attendance; two of the students were dismissed because they chose not to return for the additional training (Brown, Telephone interview, February 12, 1992). It is difficult to evaluate the effectiveness of the program from this one study. Although the data are interesting, it is important to note that the participating students were in the work/study program, indicating that they had previous work experience and connections with employers. The students in the general graduation program would most likely be in a less favorable position. In addition, no information was presented about the types of jobs the students had, how well they were paid, and whether or not they were career-track jobs, nor was there any description of the methods of teaching positive attitudes and attendance to students returned to the school district for those reasons.

Prince George's County, like many school districts throughout the country, is going through a period of sharp budget cuts and has not allocated significant financial resources to the guaranteed graduate program. Costs to date have been minimal and have been accommodated through a reallocation of internal resources. The primary cost to the district to date has been the time spent by district computer programmers to develop a program to handle the guaranteed graduate information. The software for targeting qualified students was developed internally. The administration of the program is conducted by the central office, with a contact in each high school. No additional staff has been hired to run the program; rather, the director of work/study programs in the district has simply added this new program to her responsibilities.

Student retraining has not yet posed any significant problem for the district. The students are retrained through existing adult education classes, evening classes, classes in their former high schools, or sessions with counselors. Because the return of students to the district has been minimal, it is difficult to judge the additional costs the district could incur if the use of the guaranteed graduate card became more widespread and a large number of students were sent back. However, since the card represents an assumed attainment of the basic and workplace skills, the hope is that only a few students will be returned by employers. If a large number of students are returned, the Prince George's County school system may have to use weekend workshops or seminars in place of semester-long classes for retraining (Brown, Telephone interview, February 12, 1992).

Leander Independent School District (Texas) Career Passport

The Leander Independent School District (LISD) Career Passport program, begun in 1989, is similar to a guaranteed graduate program in that it offers employers a passport certificate stating that students have completed a certain number of courses in a field of specialization and giving teacher ratings in each of these courses. Each passport is a document that states on the front the area of specialization and on the back relevant course descriptions and student performance in the courses. Teachers rate skill levels achieved in each course and sign the passport. Passports exist for ten areas: business and office services, technology and communications, agriculture (three different areas), homemaking (two different areas), drafting, marketing, and cosmetology; further passport specializations are also being considered to cover the range of curricular opportunities that exist within the school (Kincaid, Telephone interview, February 7, 1992). One goal of the passport program is to provide attractive alternatives to reduce, as much as possible, the number of students in the "general studies" track.

The technology and communications passport was started in 1990 as part of the tech prep program in electronics established by the LISD in conjunction with Austin Community College. Students receive a passport when they complete three of the four available technology-specific courses taught in the Leander Independent School District. Students are targeted for the technology and communications program in ninth grade based upon performance on an aptitude exam and then are introduced to the technology-specific courses offered and to the passport. Students have been generally receptive to the idea; however, there has been some parental skepticism.

There are no available data with regard to the effectiveness of the LISD passport program. Occasionally, students have reported to the school district that they were hired because of the passport, but their specialization areas and types of job are undocumented. LISD has not conducted any follow-up of the students, nor are copies of student passports kept on file at the school.

THE VITAL LINK: Orange County (California) Project

THE VITAL LINK: Orange County project, supported by the American Business Conference, began in September 1990. It is a partnership project among six school districts and local businesses focusing primarily on improving the school-to-work transition between high school and the workplace. One of the goals of the project is to create and implement a student portfolio. The portfolio is to be an evaluation of student achievement in the various skill and academic areas targeted by THE VITAL LINK: Orange County committee and local businesses focusing primarily on improving the school-to-work transition between high school and the workplace. One of the goals of the project is to create and implement a student portfolio. The portfolio is to be an evaluation of student achievement in the various skill and academic areas targeted by THE VITAL LINK: Orange County committee that has worked to identify skill requirements in the workplace. According to THE VITAL LINK: Orange County *Draft Planning Guide*,

> The student portfolio is viewed as perhaps the most critical component of VITAL LINK because it provides the special documentation that will set the student apart for preferred employment consideration among VITAL LINK employers (1991, p. 12).

The portfolio includes a Certificate of Achievement, teacher ratings, and other evidence of student achievement, performance, and training. The certificate offers a concise framework through which students can emphasize their special strengths, characteristics, and experiences. It has five significant components: coursework and grades/test scores, teacher evaluation results, work history, extracurricular activities, and THE VITAL LINK activities (THE VITAL LINK: Orange County, 1991, p. 12).

The task of developing a Certificate of Achievement was assigned to a group of business-affiliated human resources employees appointed by their respective chief executive officers. Members of the group were charged with examining models of various efforts throughout the country with regard to their practicality and content and with creating a document along the lines of the proposed certificate (Chiu, Personal interview, January 10, 1992). From this study, they created their own draft certificate to review with educators.

Tampa (Florida) WORKLINK$^{\text{TM}}$ Pilot Project

WORKLINK$^{\text{TM}}$ is the student portfolio format and process developed by the Educational Testing Service (ETS). The idea was inspired by an article by John Bishop which emphasized that students in a general education track received no concrete rewards for superior performance in high school (1989, pp. 6-10, 42). The WORKLINK$^{\text{TM}}$ pilot project in Tampa was the first attempt by ETS to establish a record "that makes high school performance count in the workplace" (Elford, 1991, p. 1). It was developed by ETS in conjunction with 150 Tampa employers, both small and large. The associated computer software was developed by Ron Selawach, Human Resources Management Center, Inc., a private company in Tampa that converted the information in a student's WORKLINK$^{\text{TM}}$ record into an electronic format that could be accessed and searched by employers as part of an electronic job matching system.

In order to improve the assessment of students' workplace skills, ETS developed competency tests in the basic skills of reading manuals, business arithmetic, and business writing. It developed test grading scales by examining the levels of performance of current high-quality, entry-level business employees in Tampa and then creating a rating scheme for students accordingly. Figure 2 illustrates how these test ratings are reported in a sample WORKLINK$^{\text{TM}}$ record.

The Tampa pilot project began entering student WORKLINK^{TM} records into the electronic database in spring 1991. By June 1991, about 250 high school seniors had volunteered to participate in the program (Roush, 1991). ETS and the schools have absorbed many of the pilot costs, which are estimated at $7-$10 per student record (Rothman, 1992). ETS has provided the exams for this pilot test at no charge, and school faculty or staff have volunteered or been appointed to administer the program in each of the participating schools. However, as the number of applicants, the work load, and the costs of the pilot project increase, the project will need to establish an ongoing system to manage the increased influx of paper and information to be processed and entered into the electronic database. Indeed, by summer 1992 the number of students whose records have been entered into the system was expected to be twice that of a year earlier (Salerno, Telephone interview, February 17, 1992).

Student reaction to WORKLINK^{TM} generally has been positive. Registered students have scored well on the competency exams (e.g., 65 to 70 percent of the students scored in the top 80 percent category of the exam). They find value in the program in that it increases their access to employers and helps them present their abilities more effectively. However, the breadth of student involvement has been limited. Participating students usually either know the teacher in charge at their school or are in a vocational education program. The program is most important for the non-college bound, nonvocational graduates, yet they are the most difficult to reach. High school guidance counselors often resent the program, because they have to do the WORKLINK^{TM} paperwork in addition to their other work (Salerno, Telephone interview, February 17, 1992).

Although 150 businesses participated in the formation of the Tampa program, in targeting work-related skills, and in choosing the WORKLINK^{TM} student record format, by fall 1991 only 20 actually had used the system, and only approximately five hires had been made through the program. The system can be accessed easily, either directly through a computer and modem or with a telephone and a fax machine. However, many reasons exist for the lack of widespread use (Salerno, Telephone interview, February 17, 1992). The recession is a primary reason; employers are not hiring. In addition, a major limitation of the system is that high school students are competing with many people for available entry-level positions. Moreover, companies have the responsibility to give equal opportunity access to the disabled, women, and minorities. Employer use of WORKLINK^{TM} exclusively could be in violation of equal opportunity laws and court rulings if there is little diversity represented among the students registered in the system. Therefore, from an employer's perspective, WORKLINK^{TM} may not save the time that it claims. It is viewed as another system that must be learned and another process to add to their regular hiring procedures. Employers for whom the WORKLINK^{TM} record is the most appealing are large companies looking to document Equal Employment Opportunity categorizations (e.g., disabled, women, and minorities), but even they would find it useful only if there were significant minority student participation and a way to include ethnicity as part of their search for potential employees. According to a sampling of large employers in Tampa, the computerization of the portfolio was a plus because their human resources departments are computerized; however, they were not excited about learning another software package unless it held some great advantage for them (Salerno, Telephone interview, February 17, 1992).

At the same time, WORKLINK^{TM} has a number of important advantages with respect to improving school-to-work transition. It is a system through which a continual communication between the schools and area employers is established. Employers can access, in a clear format, the types and levels of skills being taught students in the schools. Schools can monitor their students' success in finding employment and the characteristics most crucial to the current market place. WORKLINK^{TM} pushes schools to develop their partnerships with business, but not in a radical manner. It encourages gradual, but continuous, change through an ongoing dialogue with employers (Salerno, Telephone interview, February 17, 1992).

Conclusions

A common goal of these initiatives in other localities is to promote the employability of secondary school graduates through a combination of programs of self-development and methods of effective

Figure 2. Sample WORKLINK™ Record

Sample Record	Tuesday, May 14, 1991 5:29 PM
Janet M. Johnson	SSN: 301-29-8726
123 Main Street	DOB: 01/15/72
Tampa, FL 33601	Age: 19
(813) 555-7777	Sex: Female

--WORKPLACE SKILLS ASSESSMENT--

Reading Manuals	Qualified (Test 10/90)
Business Arithmetic	Qualified (Rating 10/90)
Business Writing	Probably Qualif. (10/90)

--RATING OF WORK-RELATED PERFORMANCE--

Attendance	Excellent	(7 ratings)
Punctuality	Good	(9 ratings)
Completion of Assigned Work	Average	(8 ratings)
Punctuality in Handing in Assignments	Below Ave.	(10 ratings)
Paying Attention in Class	Poor	(7 ratings)
Effectiveness as Group Member	Average	(10 ratings)
Cooperation in Class	Excellent	(9 ratings)

--REFORMATTED TRANSCRIPT--

	--Grades 9/10--		--Grades 11/12--	
English Composition	2.5	(4 courses)	2.7	(2 courses)
Mathematics	3.1	(4 courses)	2.9*	(4 courses)
Science and Technology	3.1	(3 courses)	3.2	(3 courses)
Fine Arts and Humanities	2.1	(3 courses)	2.7	(2 courses)
Social Studies	2.7	(4 courses)	2.9	(4 courses)
Business Education	3.1	(2 courses)	3.2	(4 courses)
Vocat./Indust. Education	2.8	(2 courses)	3.2	(4 courses)
Computer Science	3.2	(2 courses)	3.4	(3 courses)

(* indicated that GPA includes one or more advanced or honors courses)

--TRAINING AND EDUCATION--

TYPING, Dowdell Jr. High School

Type letters, memos, reports, applications, etc.; course required 5 hrs/week. Contact Dowdell Jr. High school for information.

TYPING II, Brandon High School 08/88-06/89

Type letters, memos, reports, applications, etc. It required 5 hrs/week. Contact Brandon High School for information.

Figure 2. (cont.)

ACCOUNTING I, Brandon High School 08/88-06/89
Accounting. It required 5 hrs/week. Contact Brandon High School for information.

BUSINESS COMPUTING, Brandon High School 08/89-06/90
Lotus 123, Multimate, and computerized payroll programs. Contact Brandon High School for information.

SHORTHAND, Brandon High School 08/90-05/91
Shorthand note taking. Contact Brandon High School for information.

--WORK EXPERIENCE--

RECEPTIONIST, Riedman Corp. 09/90-present
Phone answering, data entry, filing, and mailing. Worked 17 hrs/week. Contact Karen Pulido (813) 689-1263 for reference.

RECEPTIONIST, Simmons Construction 06/90-08/90
Phone answering, some accounting, took care of customers, typed mail up & letters, and learned WordPerfect. Worked 40 hrs/week. Contact Martha Brooks for reference.

CASHIER, U-Save 04/89-06/90
Took care of customers, handled money, and stocked. Worked 20 hrs/week. Contact Addie for reference.

--AWARDS AND HONORS--

NATIONAL HONOR SOCIETY MEMBER, National Honor Society 06/86
In recognition of good grades. Contact Dowdell Jr. High School for verification.

KIWANETT, Kiwanis 06/89
Rushed.

PARLIAMENTARIAN, BCE-FBL 06/90
Participated in Mrs. Dickey's election. Contact Mrs. Dickey for verification.

Source: Sample WORKLINK^{TM} Record, Ron Selawach, Human Resources Management Center, Inc., (Tampa, Florida, September 4, 1991).

presentation of high school achievements to potential employers. This same goal is relevant for the college bound student. The Fort Worth portfolio pilot project addresses these programs as a continuum, creating a process of portfolio development for students from kindergarten through 12th grade, which then culminates in a portfolio collection presented to possible employers. The Prince George's County guaranteed graduate program approaches the same basic goals, only in a shorter term and a more concise format. The Leander Independent School District career passport uses a more goal-oriented system, presenting to students certain areas of expertise and the method by which to gain district certification. Specialty courses with student performance are detailed as part of each student's passport document. Finally, THE VITAL LINK: Orange County certificate and the WORKLINK™ record, which incorporate comparable components in similar formats, present a general overview of a high school student's education and training, work experience, awards, activities, and skills.

Vision

Austin educators, employers, parents, and students should collaboratively design and implement an AISD-wide learning and training record (LTR) system that combines a high school portfolio assessment program and a summary achievement passport (or career passport) to document accomplishments, skills, and performance to potential employers and postsecondary education institutions. The LTR is intended to supplement, not replace, current assessment and communication methods that support high school students in their pursuit of a career.

The portfolio component should be a compilation of a student's noteworthy achievements, including the student's best academic works as well as evidence of projects or services the student views as important to self-development or work experience. The portfolio should reflect the student's development with respect to basic skills as well as to thinking skills and personal qualities. Because portfolios are intended to be developmental and educational, they should follow a student through his/her education and be used for self-assessment and student learning.

As a student progresses through high school, his/her portfolio should become increasingly directed toward the creation of a career passport that documents achievements and facilitates transition from high school to employment and postsecondary education. The passport should be user friendly both to employers and to college admissions officers. It should be readily available and concise (e.g., no longer than two pages) and provide a summary of nonacademic as well as academic accomplishments. The five basic elements of a passport, all in summary form, should be (1) courses completed, with a consistent method of measuring achievement; (2) teacher evaluations and self-evaluations, with a common set of rating criteria; (3) work experience; (4) academic and nonacademic distinctions; and (5) course descriptions and teacher assessments in specific courses in the student's area(s) of specialization. At the same time, a passport should be flexible enough to meet a student's particular education and employment needs.

An effective learning and training record must have the support of students, teachers, and employers and meet the needs of all three groups. Students should be encouraged to identify the activities, projects, and other information they want in their portfolio and passport. Both systems should be capable of being updated and maintained by the student after high school graduation to reflect subsequent training, education, work, and awards. The development of a portfolio and a passport also will focus teacher assessments on the foundation skills and personal qualities which employers, universities, and students themselves seek. This focus, in turn, will increase student motivation during the high school years, provided that the assessment process is sufficiently high quality for portfolios and passports to be useful and used. Finally, the passport would enable Austin employers to assess high school graduates as potential employees more quickly and easily. To ensure that employers' needs are met with the passport (and the LTR), AISD should involve local employers in its development. At the same time, to enhance the motivational effects for students of the passport (and the LTR), employers should give hiring priority to students with AISD passports.

Recommendations

An important strength of the LTR (i.e., the portfolio as well as the career passport) is its ability to accommodate alternative student development and assessment paths. However, to be an effective tool for evaluation and school-to-work transition, there must be some uniformity of expectation and presentation. Thus all LTRs should have common components, while permitting flexibility in determining the precise information to include in each.

The portfolio is a collection of materials the student completes while in school. At different stages in a student's education, it contains different material. It is the responsibility of AISD and its teachers, working with employers, parents, and postsecondary educators, to define what information should be included. The passport should be the end product of the process of compiling the portfolio, reflecting the information contained therein. The passport supplements the traditional transcript, which lists only course names and grades, with a more useful collection of information describing the student's academic abilities, personal qualities, work experience, and awards. Since signaling student competencies to employers should yield better jobs for graduates and connect effort in school to later rewards, the passport seeks to document the time and energy a student invests in his or her education.

A representative committee to develop the LTR (i.e., the portfolio system and the career passport) for Austin schools should determine the contents of the portfolio and passport and determine if different modules or components should be included for students in different high school tracks (e.g., college prep, tech prep, health care). Each module should have a standard format so that expectations are equal for all students; teachers can conduct relevant developmental exercises; and Austin employers can become familiar with the portfolio and passport. The committee must seek input from teachers, counselors, registrars, students, parents, and employers in creating the portfolio and passport to ensure that all necessary information is included.

Portfolio Modules

Following are summary descriptions of portfolio modules (and, thus, career passport elements) which should be seriously considered for inclusion in the Austin LTR.

Personal Information:

Basic information. This should include the name, address, social security number (or relevant identification number), date of birth, and any other information about the student that is necessary.

"Soft skills" evaluations. The student should obtain evaluations from several teachers over the course of his or her high school education. Ideally, every student should receive the same number of evaluations; making the "soft skills" (i.e., thinking skills and personal qualities) evaluation part of the quarterly grading process would achieve such a goal. This section should list the averaged scores for each "soft skill," the number of evaluations received, and the number of different evaluators.

"Soft skills" self-evaluations. An important part of being evaluated is being able to evaluate one's own abilities. This evaluation should be similar, if not identical, to the evaluations the teachers complete. This is an excellent developmental project for students.

Honors and awards. This section lets the student display any rewards or recognition for outstanding effort. The information module should describe the situations for which the student was recognized, the relevance of the award, and related information.

Grades/GPA. The formats in which grades may effectively be presented is much broader than the current listing of course names and grades on the transcript. Grades may be listed by each class; within areas (e.g., English, mathematics and science, vocational), showing broadly the competencies in noted disciplines; or divided into first two years and last two, to highlight progress from early to later education. The development of the most efficient format should be a primary consideration of the AISD committee designing the portfolio and passport. Likewise, a student's grade-point average also may be presented in a variety of formats: overall GPA, GPA in academic track, GPA with weighted honors courses, and so forth.

Standardized test scores. This should include the scores on any tests mandated by the state or school district, in addition to any scores or tests the student elects to take, such as the college prep Scholastic Aptitude Test or American College Testing exam, the state-mandated minimum-competency TAAS, or any vocational exams (e.g., for post office employees, safety and security officers, plumbing or electrical apprentices).

School/extracurricular activities. This should be a complete list of activities in which the student participated (including music, athletics, academic competitions, drama, foreign languages), descriptions of what participation entailed, skills learned, and honors or awards achieved.

Academic Information:

Course content. The back of the passport should list the abilities expected of students in the courses taken and the levels of proficiency which the student achieved. This information may include every course or just those courses relevant to the student's selected track.

Goal-setting activities. As the student progresses through his or her formal training, educators should challenge the student to set and meet goals. A variety of projects could reflect the skills of setting goals and should be included in this module.

Group project. As a capstone project of a student's high school education, a group project should gather a cross-section of students and expect resolution of a problem which crosses several disciplines. Such a module should reflect something of which the student is proud and on which the student was an active participant in a team.

Language proficiency. This module should reflect the student's skills in English and may be a piece of the student's choice, whether it is a term paper, a technical paper, a description of a significant personal event, a short story, or a poem. This module may also be an educational project that every student is required to complete, such as a thesis.

Math/science proficiency. As part of the student's math and/or science courses, he or she should be expected to complete a complex problem which reflects the student's grasp of the range of the discipline. It may be a written version of the thought process the student followed to complete a practical problem or the resolution of a complex word problem.

Something of which the student is proud. As in self-evaluation, the student should be able to assess the quality of his or her own work. The student should be free to place anything in this module: artwork, a photograph, a written piece, the results of a science experiment, or any other piece or project.

Something at which the student thinks he or she could have performed better. Relevant to the previous module as another self-evaluation exercise, this module would permit the student to assess previous accomplishments for self-improvement opportunities.

Employment and Community Experience:

Job experience. This module is a developmental tool which requires students to maintain a record of past and current employers, job titles, descriptions of responsibilities, dates of employment, and the names and numbers of the direct supervisors. This section could also contain photocopies of employment applications and examples of any work-relevant projects.

Community activities. This should describe in detail the community service volunteer work and other activities the student may have pursued outside the school, through religious and civic organizations, service clubs, youth groups, and the like.

Employability skills. As the student pursues school-sponsored projects and workshops to develop employability skills, those activities should be maintained in this module.

Special skills. The student should highlight any special knowledge not indicated by other sections or of which he or she is particularly proud. This module describes in detail any skills which may not be apparent from other modules, such as scouting merit badges and classes taken outside school.

Pilot Project

We recommend implementation of a pilot portfolio and career passport project for all students in a pilot demonstration high school. Indeed, it would be useful to pilot a K-12 portfolio initiative through the entire feeder system of elementary and middle schools associated with this high school. Students in the selected high school would participate in the development of a new approach to signal their competencies to potential employers. It may even be useful to arrange for students to interview employers to find out directly what competencies are required and why. They would compile a portfolio based on the modules described above (or those modules selected for inclusion in the pilot project) and upon graduation would receive, in addition to a diploma and transcript, a passport similar to the one described in this section. The passport would be laminated for security and would be protected under the same privacy laws as transcripts.

There are several advantages to beginning a pilot project such as this. First, the basic portfolio and passport pilot project does not require prior implementation of AISD's K-12 portfolio assessment, a long-term project with definite complementary implications for the use of passports. (As noted above, however, there would be value to piloting a portfolio project through the entire feeder system for the selected high school.) It is an excellent method of advancing AISD's goal of a workplace credential into practice quickly and in a supportive environment. Second, the High Expectations program linkage provides a special community of informed and committed students, teachers, counselors, and employers on which to test, evaluate, and refine the system. Third, the successful implementation of a pilot project will make portfolios and passports much easier to introduce throughout AISD to other teachers, counselors, students, parents, and employers. Fourth, the pilot will allow testing of various evaluations. Fifth, the pilot also offers the opportunity to work with higher education admissions officers to develop a passport that is useful as an admissions tool.

The AISD committee responsible for the development of the LTR should give special attention to integration of the pilot project passport (i.e., workplace credentialing) with the portfolio assessment. This committee should be composed of counselors, registrars, and other administrative personnel; faculty members and education experts; members of business and higher education; and students and parents. It should be charged with the development of an AISD LTR having the following characteristics:

1. For students, it is a developmental tool, a motivational tool, and a signaling device to indicate the student's accomplishments.

2. For schools, it is an educational tool for its students, a record of achievement for its graduates, and an assessment tool for its teachers.

3. For business, it is a means to determine which students are qualified for career-track jobs and to select students for those jobs in a rational manner.

4. For the community, it is a means to communicate the value of education to its students, ensure human resources are best utilized, and hold schools accountable to taxpayers.

To overcome the inevitable resistance to change, the portfolio and passport should involve no new expenditures of resources, but a reallocation of existing resources. For teachers, the portfolio is a more effective assessment approach in which students are an active and integral part, an approach which has the potential to decrease their workload. It also is a developmental exercise, a challenging and useful part of their lesson plans. For registrars and administrators, the passport is a complement to and a restructuring of the existing transcript. For students, the LTR is an opportunity to learn and grow and a means to signal their accomplishments to employers or admissions counselors. Such a signal will ultimately weave together achievement in school with rewards in later life.

Chapter 8. Learning and Training Paths (LTPs)

Rationale

Whereas students from Western Europe and Japan leave compulsory schools prepared for work, additional training, or postsecondary education, thousands of American students graduate from high school and fail to secure meaningful employment opportunities for learning and career advancement. Observers cite various factors that contribute to this dilemma: (1) the increasing size and impersonality of high schools; (2) teachers' low academic and career expectations for students; (3) uninspiring curricula that lack academic rigor and fail to provide skills young people need after high school; (4) narrow vocational training for jobs with little future; and (5) lack of contact between high schools and the business communities which they serve (Dayton et al., 1992, p. 540).

This problem also exists in Austin. From the viewpoint of many Austin firms, recent high school graduates are risky candidates for employment because they are immature, unqualified, and unable to cope with demanding tasks. Employers would rather choose from a better pool of applicants -- college graduates who want to remain in the local area, spouses of college graduates, and highly educated people who move to Austin -- to fill entry-level positions than to hire less capable students from Austin area high schools. Only after students mature and accumulate job experience do most employers consider hiring them.

The traditional solution of educators, including those in Austin -- to develop an established, coherent sequence of academic courses -- neither responds to the dynamic changes in needed skills nor develops fundamental competencies sought by employers in high school graduates. Rather, what the Austin educator and employer communities must do is develop learning and training paths (LTPs) for all AISD high school youth. Learning and training paths are integrally structured frameworks of career-relevant courses and job-site training leading students into career-level employment. Such paths all involve significant learning beyond high school but may or may not involve postsecondary education. Learning and training paths are important because they are integrated and occupationally specific, provide a clearly defined plan which high school students explore and follow, and identify levels of occupations within a desired occupational field. Learning and training paths enable local area businesses to fulfill a crucial role in the design and implementation of a school-to-work transition program. Through their partnership projects and hiring practices, businesses can work with educators to create structured, comprehensive, and effective instructional and experiential plans that will prepare students for careers upon graduation. Learning and training paths are needed because the current strategies for career preparation in high school do not prepare students for meaningful employment. We need to move away from school-based learning and toward an integrated system of work-based and school-based learning.

There is no single best way to create LTPs. Depending on the education and employment interests in a community, one or a combination of several school-to-work transition models may be most effective in providing a framework for the high school coursework and training components in an LTP.

Three program models described in chapter 3 have substantial potential to provide these LTP components. These models are academy programs, tech prep programs, and youth apprenticeship programs. An academy is a "school within a school" organized around a particular career theme (e.g., finance or health) with the active involvement of employers (Stern, 1991, p. 24). Its curriculum includes a sequence of career-relevant courses for academy students, as well as regular academic coursework taken by both academy and nonacademy students in the school. Local businesses collaborate actively in the design and implementation of academy courses and offer internships to students, usually during the summer between their junior and senior years. Tech prep programs combine at least the final two years of high school and two more years in a community college through an "articulation agreement" that coordinates academic and technical courses. Ideally, tech prep programs offer students work experience through internships and other arrangements as an integral feature of the programs. Students completing a tech prep program receive a high school diploma, an associate degree, or a certificate in a technical area and focused, comprehensive technical training that prepares them for employment. In youth apprenticeship programs, students master a basic academic level by the tenth grade and then select a trade-based path offering substantial work experience in addition to the classroom training for the remaining years of high school. After graduation, apprentices normally complete their apprenticeships on-the-job and take related training courses at a community college. The product of such a program is a skilled worker with widely accepted credentials in his/her chosen field.

A fourth significant model is cooperative education, which also makes use of learning by experience. These programs stress the integration of what is learned in and out of the classroom. The instructor arranges jobs between individual employers and students, writes a training plan detailing what each student is expected to learn on the job, and makes visits to each student's place of employment. The workplace supervisor evaluates student performance according to the objectives established by the instructor, with the student's grade based on that evaluation. Unlike apprenticeships, most cooperative education programs are found in retail and clerical employment, provide training only until high school graduation, and are based to a significant extent within the schools instead of in industry (Glover and Marshall, forthcoming 1993). Advantages of cooperative education programs include access to career-relevant job opportunities, employer accessibility to students, and school-monitored job performance. However, program effectiveness has suffered from federal funding cuts in the 1980s and a recessionary business climate. Critics also point to studies which reveal insignificant improvements in starting salaries for cooperative education graduates when compared with other graduates; however, those conclusions vary by study (Stern, 1991, pp. 14-16).

Although each of these four program models has distinctive characteristics, they share several key elements that contribute to successful learning and training paths.

1. They help businesses and youths become acquainted with each other personally and directly prior to graduation. Students become aware of job opportunities and are able to investigate them. Businesses learn about students and their diverse interests and skills.

2. They allow businesses to influence student career decisions through instruction and to socialize them in the workplace.

3. They integrate classroom-based learning with workplace learning, although workplace learning deserves further development.

4. They have a clearly organized structural framework that identifies jobs and careers.

5. They provide a framework for students to understand the relationships between school and work before they graduate.

6. They provide teachers with a greater understanding of what is expected in the workplace.

7. They enhance student awareness of job opportunities through career exploration and enable students to learn about the skills and personal traits valued in the worksite.

A long-term goal of school-to-work transition in Austin is to develop and implement LTPs for all primary Austin-area occupational clusters to enhance employment options for AISD high school youths. This chapter focuses on the development of LTPs in electronics manufacturing as an initial step toward this goal and as an example of possible LTPs in other occupational areas.

Electronics Manufacturing Career Opportunities

In summer 1991 the Capital Area Workforce Alliance identified electronics manufacturing technology occupations as one of seven targeted occupational clusters based on studies which assess such variables as growth-to-replacement ratios (1991, p. 18). Other major considerations which make it natural to select electronics manufacturing as the first occupational cluster in Austin within which to develop LTPs are impressive growth in the high technology/manufacturing sector of Austin's economy; an increasing need to ensure the existence of a qualified workforce to fill growing numbers of available positions; and substantial existing support from companies within this sector for education-business partnerships.

Growth in the Sector

According to the 1990 census, Austin ranked as the 26th largest city in the United States. The Austin Metropolitan Statistical Area (MSA), which includes Hays, Travis and Williamson counties, had a population of 781,572, an increase of 45.6 percent over 1980 (City of Austin, 1991). The growth of the MSA has been spurred by the emergence of Austin as a major center of high technology research, development, and manufacturing. Austin and The University of Texas at Austin provide an atmosphere of creativity and innovation which not only benefits established high technology firms but also fuels the entrepreneurial spirit leading to numerous homegrown high technology companies.

Over the last 25 years, industry leaders such as Texas Instruments, Motorola, 3M, Advanced Micro Devices, and IBM have located in Austin (Celebrate Publications, Inc., 1992, p. 55). During the 1980s significant contributions to local employment were made by local entrepreneurial companies such as Dell Computer, Tracor, Techworks, CompuAdd, Austin Computer Systems, Radian, Ross Technology, and Xetel. Since 1980 more than 150 new manufacturing firms have established operations in Austin, with more than two-thirds of these firms being in the high technology sector. Currently, Austin's high technology sector is made up of more than 400 companies which employ over 45,000 people. The outlook of Austin's technology sector is bright, with the expansion of employment during the last three years projected to continue in 1992 and 1993 at a 3.9 and 4.2 percent annual pace, respectively (Greater Austin Chamber of Commerce, 1992b, pp. 6-7).

In March 1992, Angelos Angelou, chief economist and vice president for economic development, Greater Austin Chamber of Commerce, identified the expansion of technology-related jobs in manufacturing, research and development, and computer software as the underlying engine of expansion for Austin's economy (Ladendorf, 1992, pp. C-10, C-11). Indeed, in the twelve months ending December 1991, the Greater Austin Chamber of Commerce reported about 40 inquiries from high technology companies expressing an interest in relocating to Austin, and the number of inquiries during the first quarter of 1992 was substantially higher than that of a year before.

Workforce Requirements

Companies relocate to Austin because of a highly educated workforce and excellent education and retraining; graduates from UT Austin constitute a pool of highly trained scientists and engineers that continues to draw major technology corporations to the city. Austin's workforce ranks among the best educated in the country among cities with more than 250,000 in population (Celebrate Publications, Inc., 1992, p. 55). The 1991 Survey of Industrial Development Research Council site selection members ranked Austin the fourth best manufacturing location in the United States (Greater Austin Chamber of Commerce, 1992a, p. 3). However, interviews with several representatives of electronics manufacturing firms in Austin revealed that many companies must go outside Austin to fill openings for entry-level technicians (Electronics Industry Representatives, Interviews, January 31-March 5, 1992).

The outlook for continued strong growth in the electronics industry in Austin is highly favorable. A study by the IC^2 Institute concluded that Austin has developed a "critical mass" of companies in the semiconductor and computer industries (Gibson, Smilor, and Kozmetsky, 1991, p. 21). In a survey of key informed business and community leaders made for the same study in October-November 1990, three industries -- semiconductors, software, and computer peripherals -- were identified as the top three technology-based growth industries in Austin for the 1990s (Gibson, Smilor, and Kozmetsky, 1991, p. 18). Growth in Austin's high technology electronics manufacturing sector is a good indication that job opportunities will be available well into the future for those people who have acquired the necessary skills to compete in this field. The development of LTPs for the electronics manufacturing career cluster would benefit both the high technology companies, which are in need of well-trained people, and Austin's youths, who need the skills and a clearly defined and integrated education and training system leading to careers with growth potential.

Austin electronics manufacturing firms already provide a high level of support for a multitude of initiatives aimed at enhancing the capacity of AISD to respond to rapidly changing education and employment demands. The Austin business community, especially the companies in the high technology manufacturing sector, stand ready to support a learning and training framework which will assure the availability of a qualified workforce. The development of LTPs would help to bring about this assurance.

Entry-Level Employment Requirements

Based on numerous interviews with Austin area electronics manufacturing companies and a review of documents provided by these firms, descriptions have been developed to reflect the duties, responsibilities, education, and experience associated with the most common entry-level positions in the industry (Electronics Industry Representatives, Interviews, January 31-March 5, 1992). Generally, three major classifications of entry-level jobs exist: (1) assembler/fabricator/production operator, which requires minimal experience and education; (2) technician, which requires an associate degree in applied science or equivalent electronics training; and (3) engineer, which requires a four-year bachelor of science degree in engineering. The descriptions in table 7 illustrate the duties and responsibilities associated with each entry-level classification, as well as the education and prior experience required by area employers when considering individuals for employment. Since these descriptions are compilations of numerous Austin area electronics manufacturing job descriptions, they may vary slightly from those of any one company.

Each classification category possesses a ladder of progression which allows individuals to move up through that classification based on performance, ability, and the needs of the organization. For instance, most Austin companies have three to five levels of assemblers/fabricators/production operators within their organizational structure, in which persons at the highest level perform the most complex duties and very often have supervisory responsibilities and commensurately higher salaries. In addition, many companies have tuition reimbursement benefits and extensive in-house training programs to assist employees in achieving their career goals.

Basic Skills

Many job applicants lack the most basic skills required for entry-level employment. Motorola of Austin, for instance, recently received approximately 20,000 applications for 500 openings. Of the individuals who progressed past the application screening and drug testing phases, a full 42 percent were unable to meet the minimum standard on the company's pre-employment skills test. While the company is willing to hire recent high school graduates for entry-level assembler positions, it commonly finds that few such graduates possess the minimum skill levels required to perform the job. Rapid advances in high technology will compound this problem; entry-level technician jobs currently require 10th grade math and reading skills, yet it is predicted that within the next 18 months the same position will require 11th grade skills (Langley, Interview, March 2, 1992).

While other large Austin electronics manufacturing companies, including IBM and Texas Instruments, also use pre-employment selection testing for entry-level assembler/fabricator/production

Table 7. Entry-Level Employment Opportunities in Austin Electronics Manufacturing Firms

Assembler/Fabricator/Production Operator

Responsibilities:

Performs a variety of routine, non-complex, and many times repetitive assembly, fabrication, or production operations involving electronic components and materials in a continuous flow manufacturing environment.

Education:

Requires basic math skills and ability to read, write, and follow simple instructions. Knowledge of basic mechanical/electrical principles and ability to understand and follow basic blueprint specifications and quality standards are extremely helpful.

Experience:

0-1 year of experience is typical.

Entry-level wage rate:

Approximately $6.00 per hour.

Technician

Responsibilities:

Performs a variety of basic duties/support activities in the electronic, mechanical, or electromechanical areas. Set up, troubleshoot, test, repair, and maintain various electrical equipment, components, and sub-assemblies.

Education:

Associate of Applied Science degree in Technology or equivalent training is required.

Experience:

0-2 years of experience is typical.

Entry-level wage rate:

Approximately $9.00 per hour.

Engineer

Responsibilities:

Performs a variety of highly technical duties in the areas of design, development, test, and production of electronic components and equipment.

Education:

BS degree in an engineering discipline.

Experience:

0-1 year of experience is typical.

Entry-level salary:

Approximately $31,000 per annum ($15.00 per hour).

Source: Electronics Industry Representatives (Austin, Texas, January 31-March 5, 1992).

operator and technician positions, smaller companies with fewer employment needs are less likely to incur the cost of developing and validating such tests. These firms are more likely to use local contract labor/temporary agencies which conduct a battery of preselection tests in order to provide the company with applicants already meeting basic skill standards prescribed by the firm. Austin Semiconductor, Inc., Houston Instruments, and Radian Corporation, for example, successfully use this method of screening applicants (Minard, Interview, February 12, 1992; Beaman, Interview, February 19, 1992; Shunk, Interview, February 11, 1992).

"Soft Skills"

From interviews with several Austin area high technology and electronics manufacturing companies, it also is overwhelmingly evident that thinking skills and personal traits are very important elements in the hiring process. The companies interviewed uniformly emphasized the high value placed on an individual's reliability, honesty, work ethic, attitude, and related personal qualities. Due to the challenging and rapidly changing environment of the electronics manufacturing industry, these companies place a premium on individuals who are flexible, motivated, team-oriented, and willing to do whatever is necessary to make their company competitive in a global marketplace. All company representatives went beyond the discussion of basic skills to point out specifically the importance of these attitudinal traits. As officials of several Austin electronics manufacturing firms noted, they are able to teach entry-level employees with the right attitude any skills these employees need (Electronics Industry Representatives, Interviews, January 31-March 5, 1992).

Given the choice between hiring a fresh high school graduate and an individual who has spent time in the workplace, an Austin employer would most likely hire the latter based on the availability of information about that individual's work record and associated basic skills and "soft skills" (Electronics Industry Representatives, Interviews, January 31-March 5, 1992). Currently, employers find it impossible to assess recent high school graduates' basic skills, thinking skills, and personal qualities on the basis of the limited course information provided on a transcript. If structured learning and training paths (LTPs) could be developed jointly by employers and AISD to address these skills and qualities through classroom instruction and on-the-job training, employers could with greater confidence hire new high school graduates.

Instructional Resources in Electronics

Identifying employer and industry requirements for potential employees and specific jobs is only part of the process of developing learning and training paths. It is equally important to examine Austin's educational resources in order to determine a foundation for developing LTPs in electronics manufacturing. Even though the high technology industries in Austin include 400 companies that employ over 45,000 people, only one teacher taught Electronics for AISD during the 1991-92 school year. A second teacher is available to teach Principles of Technology (an elective applied science course that is part of most tech prep electronics curricula), but did not teach this course in 1991-92 (Lindsey, Telephone interview, February 3, 1992).

An important part of school-to-work transition is offering vocational courses that relate to the needs of growing industries in the local community. This section reviews AISD, Austin Community College (ACC), and Texas State Technical College (TSTC) courses in electronics, including Austin-area tech prep programs. These and related courses, together with electronics job-site and other training initiatives, can form the foundations for the electronics manufacturing LTPs needed by the Austin community.

AISD Electronics Courses

An initial step in developing an electronics manufacturing LTP in Austin is to identify relevant high school courses, as well as job-site training opportunities for high school youths. AISD offers a two-hour a day, four-semester course on electronics at Bowie High School in the mornings and at Reagan High School in the afternoons. The instructor spends one hour lecturing and one hour on laboratory work, and uses the same textbook as Austin Community College (ACC). The instructor also participates in a program that integrates academic topics from math and science into vocational courses when possible (Sunbury, Telephone interview, January 30, 1992). The electronics course covers the broad topics of Alternating Currents (AC), Direct Currents (DC), Semiconductors, and Digital Techniques, each for one semester. The topic of Digital Techniques was added when Tracor reviewed the electronics course syllabus in 1988 (Sunbury, Telephone interview, January 30, 1992). The course syllabus has not received industry scrutiny since then.

The electronics course gives students the opportunity to develop technical skills as well as leadership and safety procedures. Students build amplifiers, practice soldering techniques, and every six weeks prepare a project that requires the application of topics learned. In the spring, students prepare projects for the Vocational Industrial Clubs of America (VICA) contest. Participation in VICA-sponsored contests give students the opportunity to demonstrate their mastery of electronics as well as learn leadership skills, parliamentary procedures, entrepreneurship, and electrical safety. Students are also encouraged to participate in a skills contest judged by industry standards, a written contest, and a job interview contest (Sunbury, Telephone interview, January 30, 1992).

In spite of the comprehensive nature of the electronics course, students receive little opportunity to learn outside the classroom. New AISD graduation requirements do not leave room for both cooperatiave education and a two-hour a day, four-semester electronics course. For students entering in the 1992-93 school year, AISD raised its graduation requirements, allowing only grade-level English and science classes to count toward graduation, as well as requiring Algebra I and Geometry for graduation. Below grade-level courses such as Consumer Mathematics, Introduction to Physical Science, and Correlated Language Arts count as electives only (Smith, 1992). Students needing these remedial classes will have less time in their schedules available for other electives. Students who cannot complete Algebra I or Geometry in one year may also not have as much flexibility to take their electives. Rigorous academic standards, nevertheless, are important to the school district and to students. For example, mastering Algebra I and Geometry not only maintains the option to go to college, but also offers useful preparation for work in the electronics industry.

Regardless of these graduation requirements, most of AISD's cooperative education positions are in the service industries (i.e., food, hotel, or mall jobs) or in health care. The few high school students who serve internships in local electronics companies are from the LBJ Science Academy (Thomas, Interview, January 31, 1992). To improve this situation a significant number of summer internships providing job-site training at local electronics manufacturing firms could be offered. However, AISD cooperative education supervisors currently are not employed during the summer and are thus unavailable to monitor job sites when most students have the time for job-site training without having it interfere with school demands. These supervisors could be employed during the summer to foster year-round learning and better meet the needs of students and industry.

AISD does not follow-up with students who take the electronics course to determine if these students are likely to secure a job in the electronics industry or pursue postsecondary electronics education. However, a few students have informally reported to their instructor that they have obtained assembly-line or machine repair jobs, or entered postsecondary studies in electrical engineering (Sunbury, Telephone interview, January 30, 1992). According to the AISD electronics instructor, students who successfully complete the four-semester AISD electronics course can receive eight college credits at Texas State Technical College (TSTC) in Waco. Both ACC and AISD would like to develop an articulation agreement in electronics as well, but ACC requires that AISD teach two years of Principles of Technology (I and II) in high school in addition to the electronics course in order for an agreement to be finalized (Sunbury, Telephone interview, January 30, 1992).

If two years of Principles of Technology in AISD is a prerequisite to an articulation agreement with ACC, then why is AISD not offering the course this year? One reason is that the course was previously piloted in AISD and not enough students signed up for the course the following year. The AISD instructor of the Principles of Technology pilot course attributed the lack of sufficient enrollment to the fact that it is a difficult applied science course yet only can be taken for elective credit since the Texas Education Agency (TEA) does not permit credit to be given for Principles of Technology as a science course. This instructor believes that if students received science credit for the course, more students would enroll (Botbol, Telephone interview, January 31, 1992). As an elective, the two-hour per week, two-year course format is hard to fit into students' schedules unless it satisfies core academic requirements.

The Principles of Technology course uses lectures, demonstrations, experiments, student applications, and prepared videos to demonstrate uses of applied physics in various industries. Topics generally cover the mechanical, fluid, electrical, and thermal systems. The strength of the course is that topics are presented in a clear manner that benefits all students, regardless of their career goals. AISD must find ways to recruit more students into taking Principles of Technology. Developing an electronics LTP through which AISD students are assured the skills and competencies for securing a job in the electronics manufacturing field could be the answer.

Austin Area Electronics Tech Prep Programs

In 1991, the Capital Area Tech Prep Consortium received a $50,000 six-month planning grant for the development of tech prep programs in the Austin area. Subsequently, it was awarded a $425,000 implementation grant through Title III, Part E, of the "Carl D. Perkins Vocational and Applied Technology Education Act of 1990." The implementation phase began March 1, 1992, with ACC acting as fiscal agent for the project. As of spring 1992, independent school districts (ISDs) belonging to the Capital Area Tech Prep Consortium included Austin ISD, Lake Travis ISD, Marble Falls ISD, Liberty Hill ISD, Georgetown ISD, Round Rock ISD, San Marcos ISD, Lockhart ISD, Pflugerville ISD, Hays Consolidated ISD, Del Valle ISD, Burnet Consolidated ISD, Bastrop ISD, Elgin ISD, and Leander ISD. The Leander ISD was designated as project facilitator because it was the first district in the state to set up a tech prep program in electronics (Capital Area Tech Prep Consortium, 1992, pp. 8-9).

The consortium will collaborate with all stakeholders, including students, parents, principals, counselors, curriculum supervisors, teachers, business, industry, labor, government, community-based organizations, state agency personnel, and elected officials, in implementing tech prep programs between the participating school districts and ACC. The consortium plans to include career counseling for students from junior high school to college; integration of vocational and academic competencies; professional development for teachers; job-site training such as internships, cooperative education, and apprenticeships; courses that tie "closely to work-related performance measures"; and oversight mechanisms to track how tech prep graduates are doing on the job, so that needed changes in the program can be made (Capital Area Tech Prep Consortium, 1992, pp. C-1 through C-3).

The consortium is targeting three broad occupational areas within which to implement Austin-area tech prep programs: Electronics/ Manufacturing/ Telecommunications; Business and Office Systems of the Future; and Intergenerational Options, which include child care, elder care, health care, institutional management, and preschool, elementary, special, and bilingual education (Capital Area Tech Prep Consortium, 1992, p. C-3). AISD is working to have a tech prep program in business and office systems in place by 1993. The development of a tech prep program in electronics is moving more slowly since AISD has only one electronics instructor plus one potential instructor certified to teach Principles of Technology.

Austin's delay in implementing an electronics tech prep program with ACC contrasts sharply with the aggressiveness with which neighboring school districts are beginning these programs. Round Rock ISD and Georgetown ISD, among others, are developing articulation agreements and electronics tech prep programs with ACC through the consortium. The programs in Georgetown ISD and Round Rock ISD are based on the program that has been operating since 1985 at Leander ISD.

The Leander "2 + 2" program's goal was to produce more instrumentation and control (I and C) technicians for the Austin area. The Leander program was developed by education and business leaders in an effort to graduate students with skills needed by area businesses. Working with the Center on Occupational Research and Development (CORD) in Waco, they targeted I and C technicians as a job market need and implemented Principles of Technology I in fall 1985. Since ACC could not teach enough courses in its two-year program to produce an I and C technician, three courses were developed at the high school level to prepare high school graduates to move to ACC with the potential to claim 12 hours of college credit toward an associate of applied science degree. AC Electronics, DC Electronics, Semiconductors, and Principles of Technology II were subsequently developed at Leander ISD. A telecommunications course is being developed in 1992 (Kincaid, Interview, February 7, 1992).

The Leander tech prep program recruits students as they enter the ninth grade. Fall orientation includes information on the school district's electronics courses and on a career passport (see chapter 7). At the end of their ninth grade year all students take the California Aptitude Placement Survey. If they score over a certain level in the electronics part of the test, students and their parents receive a letter informing them of their electronics aptitude and the tech prep program in electronics (Kincaid, Interview, February 7, 1992).

The ACC electronics instructor who set up the Leander electronics tech prep program is now developing new electronics tech prep programs with other school districts through the Capital Area Tech Prep Consortium. He encourages school districts to offer a Survey of Electronics course in the 8th or 9th grade. Further, the high schools are urged to offer the first three courses required by ACC in electronics and teach them at the college level. These semester-long courses are AC Electronics, DC Electronics, and Semiconductors. High schools offering an electronics course should already have the basic equipment to teach these three courses. The high school should also offer a year-long course called Tech Prep I, and another year-long course called Tech Prep II (i.e., Principles of Technology I and II). Students completing the AC Electronics, DC Electronics, and Semiconductors courses will receive 12 hours college credit at ACC, after they have completed 6 hours of additional course work at ACC (Patterson, Telephone interview, February 17, 1992).

ACC Electronics Degree Options

The AC Electronics, DC Electronics, and Semiconductors courses can lead to an electronics technology certificate or an associate of applied science degree in electronics technology at ACC. According to its 1991-1992 *General Catalog*, ACC offers three types of associate of applied science degrees in electronics technology (pp. 148-153). The first one is the generic technician option, the second is the engineering technology option, and the third is the instrumentation and control (I and C) technology option. The generic technician option and the I and C technology option are similar in that they both require many of the same basic courses, including college algebra, electronic mathematics, and general college physics; however, they differ in elective courses (e.g., the I and C option requires an additional course and more specialized electives). The engineering technology option, on the other hand, requires pre-calculus, calculus, and engineering physics, instead of college algebra, electronic mathematics, and general college physics (Austin Community College, 1991, pp. 148-153). Under established ACC-university articulation agreements, the engineering technology option can lead to a bachelor's degree in engineering technology at Texas A&M University, Texas Tech University, University of Houston, and Southwest Texas State University. The engineering technology option can also be combined with a bachelor's degree in business management at St. Edward's University (Patterson, Telephone interview, February 17, 1992).

In 1989-90, 41 students graduated from ACC with an associate of applied science (AAS) degree in electronics technology (Brader and Edelen, 1991, p. 45). This is about 6 percent of the students graduating that year with some type of associate degree. That same year there were 18 electronics technology certificate program graduates (Brader and Edelen, 1991, p. 46). Most students who attend ACC do not intend to complete a two-year associate degree, however; the overall graduation rate for ACC is less than 5 percent (Edelen, Telephone interview, April 16, 1992).

Local electronics firms are seeking to hire more minorities and women in the electronics manufacturing industry, and this goal is reflected in ACC electronics technology enrollments. In fall 1991, there were 433 students enrolled in the associate of applied science (AAS) degree program in electronics technology. Of these students, 14.5 percent were female and 40 percent were minorities. Between August 1990 and May 1991, 59 students graduated with AAS degrees in electronics technology. Thirteen of these graduates were female (22 percent), 46 were male (78 percent), and 32 were minorities (54 percent) (Edelen, Telephone interview, April 16, 1992).

Postsecondary Education Coursework at TSTC

Although Texas State Technical College (TSTC) in Waco is not part of the Capital Area Tech Prep Consortium, many Austin area employers hire technicians who were trained at TSTC. For example, SEMATECH in Austin reports hiring 80 percent of its technicians from TSTC (Covington, Presentation and tour, February 27, 1992). TSTC offers two-year associate of applied science programs in both semiconductor manufacturing technology and laser electro-optics technology. TSTC differs from most community colleges in that its programs are full-time programs; it also offers housing on campus. TSTC Waco is in the process of building new dormitories that will have a computer terminal in each room. These terminals are connected to the college network, and students will be able to access math tutorials and other programs 24 hours a day (Covington, Presentation and tour, February 27, 1992). TSTC is state-funded and does not have access to a local tax base like most community colleges. TSTC targets 18-to-24-year-old students, whereas most community colleges have greater numbers of older students. All TSTC faculty come directly from industry, and TSTC has an Idea Center which provides professional development training and state-of-the-art equipment for teachers to use in their instruction. TSTC has highly sophisticated equipment donated by businesses (e.g., Texas Instruments) and suppliers. Because the college is a community of technicians, students are able to assemble and modify equipment themselves. The school emphasizes that 60 percent of its instruction is laboratory based (Covington, Presentation and tour, February 27, 1992).

TSTC has impressive graduation and placement rates. Forty percent of TSTC students graduate in two years, which is excellent when compared with community colleges, and the college has an 85 percent placement rate. The college is only 17 percent female but is working to recruit more women. Minority enrollments compose 40 percent of the student body, and 80 percent of the students are considered disadvantaged. Specifically, 73 percent of the students are on financial aid, and 65 percent of the students receive Pell grants, which go to students below poverty level. These statistics are encouraging, considering the difficulty local electronics industry employers have in recruiting minorities and women.

The fact that TSTC students are enrolled full-time and that 40 percent of them graduate within two years offers significant advantages to high technology employees. Because technology changes so quickly, graduating in two years is preferred to working full-time and going to school part-time for five to ten years. In five years a student's knowledge may be outdated. Also, if it takes a student too long to get an associate degree, the student may never finish. Employers believe the two-year full-time plan is preferred for pre-employment students, while the community college part-time schooling is better for retraining and upgrading incumbent workers (Covington, Presentation and tour, February 27, 1992).

The Greater Austin Chamber of Commerce considered the possibility of creating a high technology training center in Austin. The idea of locating a TSTC campus at Bergstrom Air Force Base was dismissed by TSTC officials as politically infeasible. Instead, TSTC has expressed interest in joining ACC in a "1 + 1" program, with students taking remediation, academic basics, and technical basics at ACC the first year and technical hands-on training at TSTC the second year (Covington, Presentation and tour, February 27, 1992).

Conclusions

Actions must be taken by Austin employers and the AISD to develop electronics learning and training options. Articulation agreements which require that AISD recruit more instructors for electronics courses and for Principles of Technology and/or make arrangements with local industry representatives to help teach such courses should be set up with ACC. An electronics tech prep program, in which industry has the opportunity to help design and periodically update the curriculum, should be in place as soon as possible.

Vision

Austin offers great opportunities to develop learning and training paths in electronics manufacturing, as is evidenced by the multitude of local business-school partnerships and Greater Austin Chamber of Commerce programs. The education community in Austin is equally well positioned to develop and implement learning and training paths. Education leaders recognize the need for improving the transition our youths must make into the workforce and have begun to develop plans for a tech prep program in Austin. Since Austin ISD has so few teachers, facilities, and courses specific to electronics, the school district should work jointly with businesses to offer instruction to high school youth. The Austin branch campus of Motorola University and the IBM program for training Manufacturing Technical Associates offer excellent resources in this regard.

Working with industry to offer such courses is also consistent with the vision outlined in Austin's America 2000 proposal (A+ Coalition Design Team, 1992). This proposal introduced the concept of "satellites"; students could stay on their respective high school campuses or venture to places like a "local business, community college, civic theater, campaign office, zoo, retirement home, state agency, supermarket, or museum" to receive instruction in "cluster-related disciplines such as fine arts and humanities, economics and finance, or mathematics/science/technology" (A+ Coalition Design Team, 1992, p. 22). Each satellite would require at least one certified teacher, assisted by professionals, retirees, or others without teacher certification whose areas of expertise are needed in conducting the satellite instruction. Satellites in electronics could recruit retired industry professionals as teachers and could also set up internships, cooperative education, and other types of job-site training.

Also complementing the articulation of electronics LTPs is the July 1992 State Board of Education (SBOE) endorsement of specialization proficiencies recommended by the High School Task Force to better prepare Texas high school students for postsecondary education and career aspirations (SBOE, 1992, p. 22). Although this action did not change minimum high school graduation requirements, it is possible that a future measure of public education accountability in Texas might be the number of students in a school who attain either of these proficiencies.

The two specialization proficiencies approved by the SBOE are a *college proficiency specialization* and a *career/technical preparation specialization* (SBOE, 1992, pp. 175-180). Each of these builds on ten core proficiencies: English language arts, mathematics, science, social studies, foreign languages, health, fine arts, physical education, computer skills, and life skills. The college proficiency specialization includes additional proficiencies in algebra and pre-calculus; in biology, chemistry, and physics; and in fine arts. The career/technical preparation specialization includes additional proficiencies in both mathematics and science, as well as a coherent sequence of either technology proficiencies looking to postsecondary education programs or vocational and applied technology proficiencies leading to employment. Both specializations also include additional elective proficiencies. From these proficiencies one can envision graduation plans for electronics technicians, health occupations, accounting careers, and welders, as well as landscape nursery, child development/care, farm manager, and food service, to name a few. Graduation plans and resources for growth industries should be encouraged through good career counselling. It is important that AISD, working in partnership with local businesses and labor market planners, develop career-oriented graduation plans such as these as a component of LTPs.

We envision a future for Austin youths in which high school students -- especially those who do not plan to pursue a baccalaureate degree immediately after graduating -- have clearly articulated graduation course plans, post-graduation options, and learning and training paths relevant to all primary occupational clusters in central Texas. Current strategies for career preparation in high school are *ad hoc* and often fail to provide the work bound high school student with guidance, experience, and assistance. The Austin community as well as AISD high school students need occupationally specific LTPs which provide integrated systems of work-based and school-based learning. They need career-oriented sequences of high school courses which not only are high quality and coherent but also provide the relevant basis for both meaningful entry-level employment with major Austin area employers and subsequent postsecondary education studies. It is imperative that the Austin business and education communities take steps now to realize this vision.

Recommendations

The recommendations that follow represent initial steps that the Austin education and business communities should take to foster more effective school-to-work transition in a major Austin employment sector, namely, electronics manufacturing. Emphasis is placed on the key elements of an electronics LTP both to guide the design and implementation of such a transition framework in a primary employment sector and to provide a model for the development of LTPs in other employment sectors by Austin businesses and AISD.

The electronics manufacturing industry is the strongest sector for growth in the Austin area. Equally important, the electronics industry has already demonstrated its willingness to commit time, energy, and resources to improve the future for Austin youths. Although AISD and the education community have limited resources available to commit to the electronics field, with flexibility and restructuring the potential for innovative, progressive teaching and learning opportunities can be realized. The school-to-work transition programs currently being developed for Austin can successfully be adapted to electronics LTPs. It is time for Austin to move forward with the development and implementation of these LTPs as the first step toward a full spectrum of LTPs.

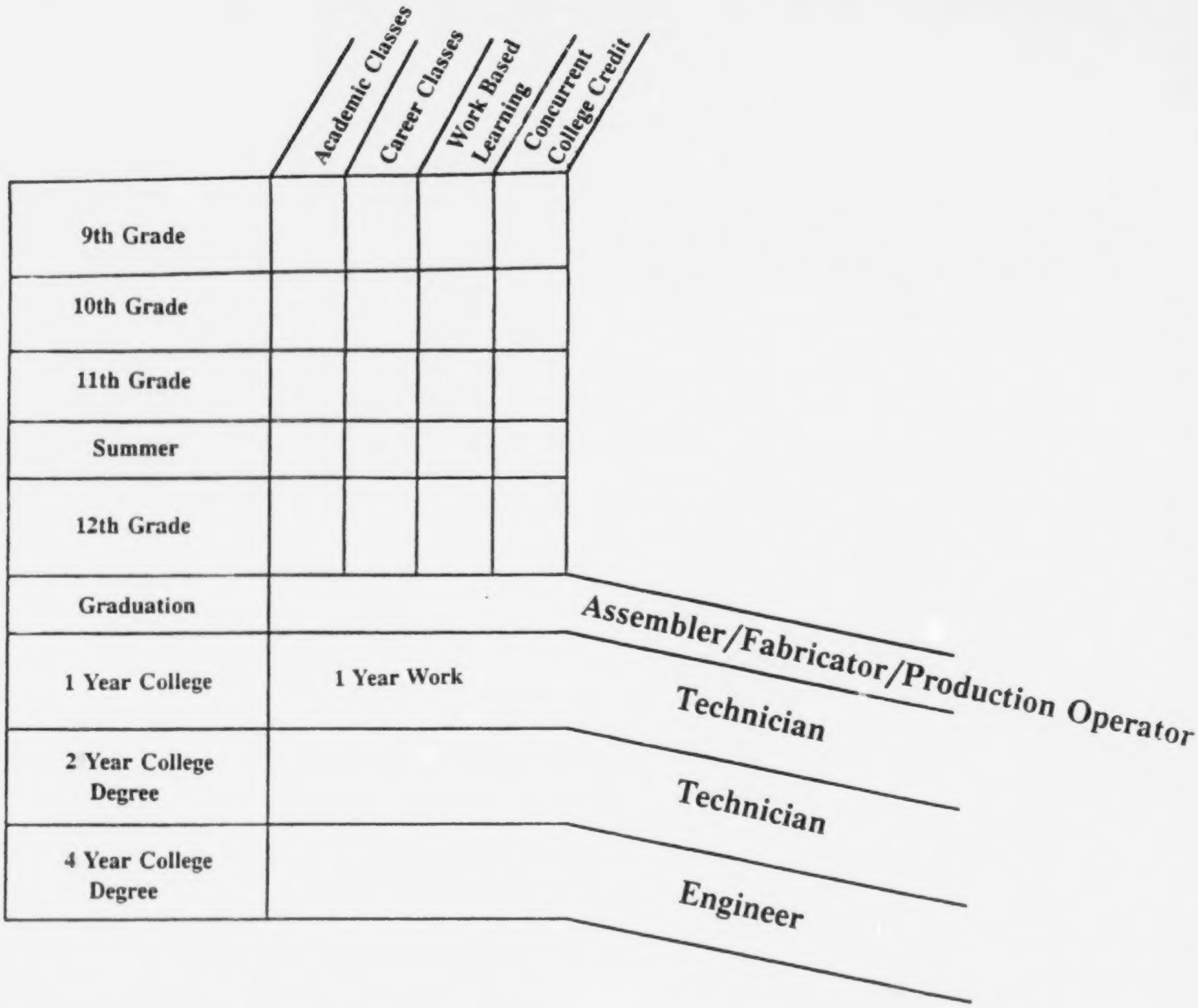
Learning and training paths (LTPs) provide frameworks for students to link effort and achievement in school and at work with real career employment opportunities. At the core of each LTP are integrated programs of academic courses, career courses, work-based learning, and college courses. However, initial attention to learning and training paths should begin in middle school with career exploration. Ideally, career exploration should be incorporated into regular courses (e.g., science courses). It should also include information on careers that do not require a four-year college degree but do offer mobility along a career ladder. Middle school students also could be offered opportunities to take, as electives, semester-long courses exploring types and content of jobs in various occupational fields.

With career exploration having taken place in middle school, students entering high school should have knowledge of one or more career areas in which they are interested. High school should then begin to provide students with the learning and training components articulated in LTPs. Beginning in ninth grade, the schools would offer applied and career-specific courses and workplace experiences. Internships should be developed for students during the summer between eleventh and twelfth grade. Graduating students who have completed the high school elements of an LTP in a specific occupational area should be eligible for an entry-level job in that area and should be sought by employers in that field. These students also have the opportunity to move directly into a postsecondary educational institution to continue their education and to enhance their career options.

These general considerations about LTPs apply in the design of electronics (or, electronics manufacturing) LTPs. We recommend that, in pre-LTP career exploration at the middle school level, students be introduced to the electronics industry (among others) and informed about the variety of entry-level positions in electronics manufacturing firms. Employment exploration should include student visits with industry representatives.

Figure 3 provides a preliminary representation of a learning and training path for electronics that we recommend as the basis for AISD-industry adoption and implementation. The four high school years should comprise core academic courses, career courses in electronics, work-based learning, and advanced electronics

Figure 3. Learning and Training Paths for Electronics Manufacturing



	Academic Classes	Career Classes	Work Based Learning	Concurrent College Credit	
9th Grade					
10th Grade					
11th Grade					
Summer					
12th Grade					
Graduation					Assembler/Fabricator/Production Operator
1 Year College	1 Year Work				Technician
2 Year College Degree					Technician
4 Year College Degree					Engineer

courses concurrently earning college credit. These high school components could be addressed in any of several models, including academy programs, tech prep programs, youth apprenticeship programs, and cooperative education programs. Work-based learning could be integrated into relevant school-based career courses, be provided through cooperative education assignments or other full-time school year experiences, or consist of summer internships in electronics-related positions.

Upon high school graduation, students interested in electronics careers should have three primary options with respect to entry-level employment in electronics manufacturing firms in Austin. These options have been identified in interviews with Austin firms (Electronics Industry Representatives, Interviews, January 31-March 5, 1992). As shown in figure 3, after completing the high school requirements of an electronics LTP, a student should have the skills and personal qualities to qualify as an assembler, fabricator, or production operator. A second option for the high school graduate would be to gain one year of related work experience and one year of relevant college coursework or two years of college coursework for a relevant technical degree. This would qualify the young person for an appointment as a technician. Finally, a relevant four-year science or engineering degree would qualify the individual for a position as an engineer.

The electronics LTP, then, includes this full spectrum of options. It is a "path" along which the student selects the point at which he/she chooses to enter the workforce -- and knows what levels of education and experience are needed. Within the high school years, how a student completes the necessary academic and career courses and gains the necessary workplace experience must be jointly developed and implemented by AISD and the local electronics manufacturing firms. This collaboration might involve the adoption of electronics/engineering academy programs, electronics tech prep programs, youth apprentice programs in electronics, cooperative education programs in electronics, or other models. Any one of these could be a component of an electronics LTP in AISD. The important consideration is not what models are used but whether the high school student has achieved the essential learning and training foundation in electronics by the time he/she graduates.

If the concept of an electronics LTP is to have meaning and value for students and students and employers, everyone must fully and clearly understand what academic and career courses, work-based experience, and college courses a student has had at each of the three primary "exit" points of the proposed electronics LTP. It is thus essential that businesses and schools jointly design occupational LTPs. In each LTP there must be agreement on the types of jobs for which a student is eligible at different "exit" points; on what academic and workplace skills and experiences a high school graduate should have; and on the content and sequence of courses.

Education leaders need to develop articulation agreements with postsecondary institutions so that students receive concurrent college credit for college-level high school coursework. Business leaders need to develop internships and work site learning. Both of these actions will provide incentives for Austin students to pursue careers in electronics.

The following recommendations will facilitate the development of a useful and effective AISD learning and training path in electronics manufacturing.

1. The Austin electronics industry should establish an industry steering committee or electronics careers council. This group would serve as the key liaison between the industry and Austin-area school districts as well as Austin Community College for the development of career information and LTPs into the electronics industry. This industry group also would play an active role in the development of programs, curricula, and job-site training options. Similar industry steering groups should be established to foster the development of LTPs in other industries.

2. AISD and Austin electronics manufacturing firms should create expanded opportunities for meaningful business and teacher interaction. It is extremely important that the classroom teacher, the individual who has the most one-to-one contact with students, become knowledgeable about

industry needs and opportunities. Possible actions include the following:

   (a) establish teacher internships with electronics manufacturing employers;

   (b) organize company tours and day visits for teachers and counselors;

   (c) conduct meetings and/or workshops in which electronics industry representatives communicate the skills needed in entry-level employment; and

   (d) visit classrooms in math, science, and electronics to confer with students and teachers about the applications of academic skills in the workplace.

3. Working with industry, AISD should provide more information about electronics careers, recruitment for technology classes, and actual electronics instruction in high school. Electronics business leaders should assess the Principles of Technology course to ensure that it meets required workplace needs and academic standards. If it does, then this course should be offered in fall 1993, with an appropriate student recruitment effort. One way to stimulate interest would be for each Physical Science class to take a field trip to a high performance electronics industry firm. Electronics business leaders should urge TEA and the State Board of Education to offer science credit or other core credit for Principles of Technology. AISD also should negotiate access for its students and teachers to training programs at Motorola University in Austin and the IBM Manufacturing Technical Associates program. Gaining access to such industry facilities for AISD students and teachers should help eliminate the stigma commonly experienced by traditional vocational education.

4. AISD and TEA should allow more flexibility in the selection of teachers for electronics courses. Instructors from Motorola University in Austin and the IBM Manufacturing Technical Associates program, as well as retired electronics industry professionals, are well-equipped to teach electronics courses in high school. These types of teachers are often more knowledgeable than nonindustry instructors about changes in the electronics industry and have higher credibility with students.

5. AISD should negotiate an articulation agreement with ACC so that students could obtain concurrent ACC credit for some electronics courses taken in high school. This credit would serve as an incentive for students interested in electronics to pursue an associate of applied science degree at ACC after high school graduation.

6. AISD, working with ACC and local employers, should establish tech prep programs in electronics in one or two high schools on a pilot basis. An academy program, or "school within a school," could be created in a high school and/or training site at a local business where one science or Principles of Technology teacher, one math teacher, one English teacher, and one electronics teacher commit to work collaboratively with the 80 to 100 students who are interested in careers in electronics. These teachers would coordinate lesson plans, discuss common problems they are having with students, and relate their curricula and applications to the electronics industry. This collaborative effort would give students a sense of community and an understanding of how their high school courses relate to the world of work.

7. AISD, working with local businesses, should develop and implement a career passport and portfolio in these pilot high schools.

8. AISD should develop and implement a career exploration course and the use of the Wisconsin-initiated Career Options Jr. Student Planner in the middle schools feeding into the pilot high schools in an effort to interest incoming freshmen in careers in electronics.

In this chapter, electronics manufacturing was selected as the initial industry sector in which we recommend LTPs be articulated. However, LTPs should be developed with other industries as well. The recommendations above, if implemented, can serve as initial steps to change the system. They offer the Austin community the opportunity for improved school-to-work transition benefitting students by increasing their job opportunities, benefitting schools by lowering dropout rates, benefitting local businesses by supplying them with better-trained workers, and benefiting Austin by strengthening its economy and attracting additional employers to the area because of its highly trained youths.

Chapter 9. Next Steps

Simply put, a system for effective school-to-work transition in Austin should be designed to achieve three essential objectives: *improving career foundations* (i.e., enhanced basic skills, thinking skills, personal traits, and career awareness and exploration) for all youth; *developing learning and training records* and career passports to document and signal career foundations, achievements, and experience; and *developing learning and training paths* from high school into career opportunities in the workplace. Attaining the long-range school-to-work transition vision outlined in this report requires achievement of these three objectives.

After projecting how AISD education might be viewed by students and parents in five years, this chapter recommends immediate measures that can be taken toward achieving the three essential objectives and concludes with a call for a concentrated community effort to pilot the recommendations within a feeder system of AISD schools.

Glimpses of a Future AISD

Kindergarten

From their first contacts with parents, schools emphasize the skills and personal traits their students need to be successful in life. Parents are invited to help. At Kindergarten Roundup last spring, Johnny's parents were invited to participate in the MegaSkills program and, as a preview, were introduced to some practical ideas for building skills at home.

Parent training is not new to Johnny's parents. As an underweight baby born at Brackenridge Hospital, Johnny was provided follow-through services in his preschool years as a result of initiatives begun by The Austin Project in 1992. Progress in his physical and mental development was periodically assessed. When Johnny was an infant, his parents learned how to play with their new child in ways to stimulate his development through a series of home visits and workshops from an organization called CEDEN. Parent participation and parent training were integral features of Austin's new universal Head Start program serving 3- and 4-year-olds. Thus, collaborating with the teachers at the school seems a natural activity to Johnny's parents.

Third Grade

In September Sarah's third grade teacher sends letters to all parents informing them what skills and personal traits are to be emphasized during the year and asking them to think about how these skills and traits are used in their jobs and lives. Parents then are invited to make class presentations which show the importance and relevance of these skills and traits. For example, perhaps a carpenter, a medical secretary, and a bank officer might volunteer. Presenters are provided with an orientation, including tips on how to communicate effectively with the youngsters and additional details on what the teacher has already presented to the students. In their presentations, the parents describe what they do, why it is important, and how the skills and traits the children are learning in school are used in jobs.

The elementary school emphasis is on making students see connections between what they are learning in school and the world of work and on promoting students' understanding of an array of career opportunities.

Fourth Grade

During the summer Johnny's teacher worked as an intern for the Texas Department of Transportation and conceived a good idea for a project to introduce students to the uses of surveys and the mathematics involved in using them. Johnny's class plans and conducts a survey of their elementary schoolmates and enlists the second grade class to count and mark the responses. Johnny's group then makes percentile calculations and presents the information in various bar charts and pie charts. The exercise concludes with a series of visitors who demonstrate the uses of surveys at their workplaces. For example, a state employee explains how surveys are used to locate and time traffic signals. A political pollster explains how polls are used to guide political campaigns. A grocer explains how shelf space is allocated in the store on the basis of sales information accumulated through the electronic inventory features of the optical scanning system for customer checkout.

Fifth Grade

Sarah finds the curriculum full of individual and group projects which emphasize cooperative learning. As part of her English class, Sarah is working with a team assigned the task of starting their own business. They are encouraged to be imaginative. They must determine a need, conduct research and write a "market analysis," design stationery and business cards, and write a press release to the local newspaper informing the public about the newly formed business. Each person in the team must interview an entrepreneur and write an essay based on "a day in the life of " this business person. In addition, each student prepares a resume. Sarah's team selects a package or portfolio to represent the team, with the requirement that the package must contain at least one writing sample from every individual in the group. The chosen portfolio from each team is published in a booklet. The exercise culminates in a parents' meeting at which all get a copy of the booklet and listen to an oral presentation from each team. Sarah's teacher especially likes this project because it motivates students to view the world of work creatively. As an exercise beginning students' career exploration, it urges them to take an entrepreneurial perspective on the world. The project also strongly appeals to parents.

A pharmacist visits Sarah's math class this year to explain how fractions are used in her profession. She demonstrates a kit to test whether medicines are mixed in exact proportions and holds a brief discussion of the consequences of an inaccurate mixture.

Summer Between Seventh and Eighth Grades

Johnny spends each morning for a week visiting the local bank with a group of other children his age and a teacher guide. An orientation the first morning begins in the Board of Directors' room, where all types of jobs available in the bank are explained. The orientation is followed by a tour of the bank, including an explanation of checking accounts, loans, and other banking activities. Each student works one-on-one with an employee who serves as a guide for part of the week. Each student spends the final few minutes of the day filling out a reaction sheet which reflects on the activities of the day. The final day is a debriefing, with the students making oral presentations on what they learned.

This program is an expanded version of an earlier one-day activity in the Gettin' Down to Business program. It is available to all students in the school, but they have to earn their way into it by contracting with the teacher to achieve a specified performance level on some element of their schoolwork during the seventh grade.

Johnny is introduced to his Career Options Jr. Student Planner. He conducts a self-assessment and begins building a portfolio of his accomplishments. He begins to realize that it is his responsibility to accumulate his own record of accomplishment that will present himself well.

Eighth Grade

Sarah continues working on her Career Options Jr. Student Planner. This year, she takes a battery of interest and aptitude tests as part of a career exploration course. Followup consultation is held on her test results, and she and her parents are provided with ideas for an individualized plan for exploring her career interests. Sarah and her friends begin learning about occupations from videos and other materials. The middle school library is well stocked with recent career materials geared to the youngsters. Later in the semester, through the Austin Scholars Program, she begins to understand how the choices she makes with regard to high school courses are related to the future lifestyle she will be able to afford.

Sarah does not realize what manufacturing involves until she programs the school district's mobile robotics lab parked at her middle school for a few weeks at the beginning of the second semester. The experience stimulates her interest in the tech prep program in electronics. Sarah especially finds attractive the features of tech prep that offer her a way to get a jump on college by accumulating credit for college courses through concurrent enrollment. She also likes the prestige of taking technical courses on site with local employers -- and the experience of using tools and equipment that schools do not have.

Sarah's friends entering AISD high schools have a variety of academies from which to choose. In addition to the Science Academy and the Liberal Arts Academy, several academies focus on careers in particular industries. These are not traditional vocational education programs; rather, they integrate academic learning with workplace applications. Each combines a program of strong academic courses with practical applications from an industry. In a true sense, the industry becomes a context for learning. Firms participate actively in each of these academies. Within Austin's Adopt-A-School Program, many firms have gravitated to work with the academy focused on their industry. To date, there are academies in health care professions, teaching, computers and electronics, business and finance, and leadership and public service. Additional academies are being formed each year as industries find teams of teachers with which to work. A program is being formed for aspiring student entrepreneurs that involves matching them with accomplished entrepreneurs through the Austin Technology Incubator. The student entrepreneurs are also learning practical business operations by administering a variety of school-based enterprises. General themes form the basis of other academies; for example, this year an academy focused on the theme of the environment is being organized.

Ninth Grade

As a project in English class, Johnny is working with a group to develop a videotape explaining office occupations (a career cluster) to his fellow classmates. To accomplish this exercise, students must work effectively in teams, manage resources, and learn a variety of other skills. As part of their research, the group has decided to measure the satisfaction of job incumbents in Austin. The group obtains advice on the design of the questions, sample selection, and statistical analysis from their math teacher. The group conducts its own research and prepares the interview scripts. The videos they produce will be used by other students, after being validated by industry officials and edited by community service volunteers from the Radio-TV-Film Department at The University of Texas at Austin and the media program at Austin Community College. The videos will be placed in the school library and be available on a checkout basis to future students of the school. If the project is successful, copies of the best tapes will be made available for checkout through public libraries and from the community service section of a chain of local video stores.

After teaching algebra for ten years, Johnny's teacher has developed some great responses to the traditional student complaint: "Why do I have to study algebra? I'll never use it!" Through Austin's Teacher Internships with Employers (TIE) program, his teacher has become familiar with statistical process control techniques; participated in industry training sessions; worked with production line workers who are responsible for using Pareto charting and statistical techniques that assume a knowledge of algebra to analyze data to assess product quality; and accumulated practical examples of algebra in action in the jobs of technicians and engineers.

Tenth Grade

The newly developed Health Care Academy at Sarah's high school is popular with several of her friends. Bill initially enrolled in the Health Care Academy because he was considering becoming a licensed vocational nurse (LVN). Now that he has become more familiar with the wide array of careers available in the allied health field, he has decided to continue his studies in college to become a physical therapist. Eva is also a student at the Health Care Academy. Through an internship at Brackenridge Hospital, Eva discovered that she does not want to work directly in the health care industry because she does not enjoy being around sick people. Instead, she has decided on a career selling pharmaceutical products to doctors. She has planned a college program of study that combines courses from the business school and the school of pharmacy. Kisha originally was attracted to the Health Care Academy because she wanted to be an X-ray technician. After gaining an appreciation for the pace of change in technological tools and the need for adaptability, she decided to refocus her efforts on developing skills to operate a variety of medical equipment.

Bill, Eva, and Kisha earned industry mentors or coaches who give them individual attention. To earn this benefit, the students volunteer for at least 40 hours of related community service work over the school year. Most community service positions have been designed with teacher input to include a strong learning component. Students must write about their work experience and discuss it in group debriefing sessions. High performing students may also receive a letter of recommendation from their supervisors at their volunteer worksites.

The summer before their junior year in high school, most students from the Health Care Academy arrange work-based learning experience. With assistance from her mentor, Eva arranged to accompany a manufacturer's representative on his sales calls for three weeks. She has also been invited to tour McNeil Labs in Round Rock and Abbott Labs in Austin. Other students have internships or apprenticeships in health care.

Through the Health Care Academy, Bill understands how the material that he is learning in school is clearly connected to life after school, but what he likes best about the Health Care Academy is that he goes to school with a group of students who share interests and have become close friends. For the past three years he also has had contact with a team of teachers who have come to know him well and who care about him.

Eleventh and Twelfth Grades

As its name implies, the High Expectations program has gained a reputation as a demanding but rewarding activity. Students must meet attendance and grade point average requirements, and they are responsible for developing a career passport which documents their skills and abilities and which includes recommendations regarding personal qualities. The program has developed a high community profile by steadily improving its record of placement over time. It is seen by many students not only as a way to obtain a job after graduation, but as a means to get access to quality learning opportunities that would not be available without the program. The first electrical apprentices placed with the City of Austin's Utilities Department through the program will complete their apprenticeships and take the licensing exam at the end of this year. Ultimately, they will be qualified to earn more than $40,000 per year as journeymen electricians. High Expectations participants have a genuine understanding of why they must continue their learning after high school if they expect to get and keep a good job. Further, they recognize that learning occurs on the job as well as in school.

Johnny -- who now prefers to be called John -- has decided to work in the electronics industry and go to college after graduating from high school. Through High Expectations, he obtained a list of Austin-area employers who offer tuition reimbursement programs and learned which programs operate effectively and which do not. He and his parents also have attended workshops on financing college that explained the maze of financial assistance and helped them fill out the applications.

Through High Expectations, John has honed his job interview skills. Improvement in these skills comes naturally because he has had several opportunities to make oral presentations as a part of group projects. Through his work in school and especially in the Electronics Academy he has accumulated an impressive portfolio of accomplishments. Further, he already has developed personal contacts with individuals at several Austin electronics manufacturers.

Perhaps the most striking improvement from 1993 is the amount and quality of information that AISD high school students have about their future options. John and his fellow students have a realistic picture of what jobs involve, what training and skills they require, and what they pay. Developed especially for the AISD school-to-work system, this information is widely available in computer terminals across the Austin community -- in public libraries, employment service offices, schools, and most homes.

John has been asked to present his experiences with the Electronics Academy to a group visiting Austin to learn about its approach to school-to-work transition. This is not the first time he has made such a presentation, for he has gained experience by making oral presentations in group projects all the way through high school. People in other communities are beginning to notice what Austin has accomplished. In fact, so many people have visited Austin that the visits have been disruptive to the school environment. Thus one day each fall and spring the school district, the A+ Coalition, and the Greater Austin Chamber of Commerce collaborate to sponsor a program presenting their collaborative program to visitors.

Getting Started: An Action Plan

In order to be clear and most helpful to the Austin Independent School Distict and the Austin community, we offer specific recommendations to implement an action plan. At the same time, we recognize that there likely are other means to accomplish the same ends. Indeed, each school and its business partners are likely to tailor our recommendations in the process of making the recommended actions "their own." This is to be expected and is fine as long as the ultimate objectives are not compromised. For example, while we recommend the establishment of a course in career exploration for all middle school students, the important point is that middle school students achieve a greater understanding of the career options available. Thus if this project objective and others can be accomplished in alternative ways, so be it.

A key premise of the recommended action plan is that the proposed changes must be taken together, because they are mutually dependent and reinforcing. Implementing only one recommendation districtwide is likely to have little long-term benefit. Second, since there clearly are not enough public and private resources available in Austin to initiate all the changes districtwide, the full range of recommendations should be implemented within *one* of the AISD feeder systems -- much like the strategy taken in Austin's America 2000 proposal (A+ Coalition Design Team, 1992). (A feeder system consists of one high school, plus the middle schools and elementary schools that feed into it.) During summer 1992, AISD reorganized itself into vertical teams which should facilitate implementation within a single feeder system. Demonstrating the system within a single feeder system should lessen the resources problem, yet provide a suitable medium in which to pilot the initiative.

The remainder of the 1992-93 school year should be devoted to selecting the initial feeder system, planning the demonstration, organizing appropriate committees, securing funding, and preparing AISD teachers and staff. The design and occupational focus of the academies should be selected and developed with the assistance of industry partners. A special campaign should be conducted to solicit Adopt-A-School Program partners with a commitment to school-to-work transition across the entire feeder system which has been selected. Such partners should be willing to provide assistance with career exploration, teacher internships, and work-based learning for students throughout the feeder system.

As many elements as possible of the school-to-work transition initiative should be operational within one AISD feeder system by the 1993-94 school year. Implementation in one feeder system by 1993-94 is imperative, because of the urgency of the task and the reality that a system that is operating draws funding more easily than one in the design stage. The rate at which the initiative is replicated in other AISD feeder systems will depend on the availability of resources and the care and planning taken to ensure its spread.

The initial feeder system schools can serve as demonstration sites, and some of their teachers should be designated as demonstration teachers. By spring 1994, the schools in the initial demonstration system should be open for site visits from school personnel in other AISD feeder systems, and the demonstration teachers should be made available to provide in-service training at schools in the planning stage.

Austin ISD should choose a pilot feeder system in which staff are receptive and elements of the school-to-work transition initiative, including the High Expectations program, are already in place. Austin ISD, in collaboration with industry officials and high school teachers, should decide the initial occupational theme(s) (e.g., health care, electronics manufacturing, and/or banking and finance) of the high school in this feeder system.

During the 1992-93 school year, several committees should be formed and begin work. An *implementation committee* must first be formed, consisting of representatives from AISD, the Greater Austin Chamber of Commerce, Project A+, the schools involved, and other groups. This committee will coordinate the entire demonstration project. Once other committees are formed, the chairpersons of each of the other committees will serve on this implementation committee.

A *teacher preparation committee* is needed to ensure that all K-12 teachers in the pilot feeder system have a minimum of two in-service days on school-to-work transition issues such as the need for improving the transition, skills needed in the workplace, applied academics, and interactive classrooms. In addition, teachers should be provided at least one day to visit a workplace as part of a structured tour in a partner industry. This committee would ensure that teachers in the chosen feeder system are fully informed of the upcoming summer internships and application process, as well as ensure follow-up for teacher interns and the development of applied academics in the classroom.

A committee of teachers, curriculum specialists, and community business representatives is needed to design the *required middle school career exploration course* to ensure it is interactive and gives students significant responsibilities to explore careers. The design team should work with the Gettin' Down to Business program and with the Texas Scholars Program. It also should review and modify, if necessary, the Career Options Jr. Student Planner, as well as investigate resources from WAVE, Workforce LA, and other promising programs. The course should begin in the feeder system's middle schools in fall 1993.

Industry steering committees or careers councils should be created to work with teachers in the chosen high school to develop learning and training paths for students in the selected career areas and summer internships for teachers. Industry representatives should represent firms from a cross-section of the industry that are committed to developing their future workforce. The teachers should include those who teach courses necessary for effective school-to-work transition.

Also necessary is a *portfolio and career passport committee*. This committee, composed of teachers, counselors, and human resource officials from industry, would be responsible for designing student portfolios and career passports and promoting their informed use and acceptance. This committee would continue and expand upon the dialogue begun between the Austin Human Resource Association and school district officials. It would decide what assessments of the various required skills are appropriate and useful to employers. As part of this process, it would examine the list of workplace competencies and measurements developed by the Austin/Travis County Private Industry Council.

Other groups will need to develop teaching approaches to skill areas not now effectively covered by the curriculum. For example, a group primarily composed of elementary school teachers from the pilot feeder system schools could examine the development of "soft skills" in students and consider how to bring the MegaSkills program more actively into the classroom. Similarly, a group on oral communications, composed of English, drama, and debate teachers as well as elementary and middle school teachers, curriculum writers, and outside experts, might devise proficiency standards in oral communication for graduation as well as teaching approaches and the curriculum necessary to reach them.

To succeed, the demonstration project requires an institutional focus and must be staffed by more than volunteer committees. Someone must have the full-time responsibility to make it happen. Outside resources probably can be found to finance the development and implementation of the school-to-work transition system, especially in the initial feeder system. Once implemented, however, it is likely that the school-to-work transition system will need to be maintained through regular funding sources within Austin.

A Community Effort

> It takes an entire village to education one child (African proverb cited in U.S. Department of Education, n.d., p. 1).

Schools cannot improve school-to-work transition on their own. The development of a quality workforce requires active participation of many community organizations, including parents, students, postsecondary institutions, public officials, churches and synagogues, community groups, and especially private and public employers.

Some of the best individual programs in the world are found in the United States. These help a few youths here and there. What we often lack, however, is a consensus on strategy and the powerful *systems* of policy and practice that our industrial competitors have (Marshall and Tucker, 1992b, p. xvii). What we need is a systemic effort that matches the scale of the problem we face and reaches the majority of our students who do not go to college. The education of our entire workforce will become increasingly important to competing effectively in the future.

This report articulates a comprehensive strategy for improving school-to-work transition in Austin. What is needed now is a community effort to refine this strategy, to develop consensus around it, and, most of all, the sustained will to implement it.

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February 11	Radian Corporation: -Joe Shunk, Assistant to the Production Manager
February 12	Austin Semiconductor, Inc.: -Roger Minard, President and Chief Executive Officer
February 14	SEMATECH: -Pat Cockburn, Training Coordinator -Vern Ogden, Human Resources Director
February 17	IBM Corporation: -Sam Zigrossi, Site Education Manager
February 19	Houston Instruments, Inc.: -Kathy Beaman, Human Resources Director

March 2	Motorola, Inc.: -Gary Langley, Human Resources Director and Manager of Internal Training
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